

# List of All Chemicals

## **P** Avena sativa (Poaceae)

Common name(s)

Oats

How used

Food

\*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Chemical	Plant Part	Low PPM	High PPM	StdDev	*Reference
1,3,4-PENTANE-TRICARBOXYLIC-ACID-TRIMETHYL-ESTER	Hull Husk	--	1.3		*
1,3,4-PENTANE-TRICARBOXYLIC-ACID-TRIMETHYL-ESTER	Pericarp	--	1.3		*
1,3-AMINO-PROPYL-PYRROLINIUM	Sprout Seedling	--	--		*
2,2,6-TRIMETHYL-CYCLOHEXANONE	Seed	--	--		*
2-CARBOXYARABINITOL	Leaf	--	517.0	0.74	Moore, B. D., Isidoro, E., Seemann, J. R. 1993. Distribution of 2-Carboxyarabinitol Among Plants. Phytochemistry 34 3: 703-707. Dept. Biochem. Univ. Nevada Reno 89557, USA.
2-METHYL-HEPT-2-EN-6-ONE	Seed	--	--		*
26-DESGLUCAVENACOSIDES	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
29-ISOFUCOSTEROL	Seed	--	--		*
3'-HYDROXYAVENALUMIC-ACID	Fruit	--	--		*
3,4-DIMETHOXY-ACETOPHENONE	Petiole	--	--		*
3,4-DIMETHOXY-ACETOPHENONE	Hull Husk	--	--		*
4,5-DIHYDROXY-7-METHOXY-8-C-GLUCOSYL-O-RHAMNOSIDE	Leaf	--	--		*
4-VINYLGUAIACOL	Seed	--	--		*
<b>Activities (4)</b>					
Antiedemic					
Antiinflammatory					
Antiprostaglandin					
Prostaglandin-Synthesis-Inhibitor IC50=18 uM					
5-DEHYDRO-AVENASTEROL	Seed	--	--		*
5-DEHYDRO-AVENASTEROL	Leaf	--	--		*
5-HYDROXY-3',5'-DIMETHOXY-GLUCOSIDE	Leaf	--	--		*
5-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
6-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.
7-DEHYDRO-AVENASTEROL	Leaf	--	--		*
7-DEHYDRO-AVENASTEROL	Seed	--	--		*
7-HYDROXY-N-HENTRIACONTAN-14,16-DIONE	Seed	--	--		Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.

7-METHOXY-VITEXIN-O-RHAMNOSIDE	Leaf	--	--		*
7-O-METHOXYVITEXIN-O-RHAMNO-GLUCOSIDE	Sprout Seedling	--	--		*
ACETIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

#### Activities (16)

Acidulant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antibacterial 5,000 ppm					
Antiotitic	Martindale's 28th				
Antisalmonella					
Antivaginitic 1-2%					
Expectorant	Martindale's 28th				
Fungicide	Martindale's 29th				
Keratitigenic					
Mucolytic	Martindale's 29th				
Osteolytic					
Perfumery FEMA 6,000-40,000 ppm	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry				
Pesticide					
Protisticide	Martindale's 29th				
Spermicide	Martindale's 28th				
Ulcerogenic	HerbalGram No. 20, page 9.				
Verrucolytic					

ACONITIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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#### Activities (1)

Perfumery FEMA 1-30 ppm	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry				
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AEGILOPSIN	Hull Husk	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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ALANINE	Seed	--	4000.0	-1.31	Jim Duke's personal files.*
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#### Activities (3)

Antioxidant	Larson, R.A. 1987. Review Article Number 30. The Antioxidants of Higher Plants. Phytochemistry. 27: 969-978.				
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Oxidant	Larson, R.A. 1987. Review Article Number 30. The Antioxidants of Higher Plants. Phytochemistry. 27: 969-978.				

ALPHA-KETO-GLUTARIC-ACID	Hull Husk	--	--		*
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ALPHA-KETO-GLUTARIC-ACID	Petiole	--	--		*
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ALPHA-TOCOPHEROL	Seed	4.4	10.1	-0.7	Jim Duke's personal files.*
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#### Activities (32)

Antialzheimeran					
Antianginal					
Antiarthritic					
Antiasthmatic					
Antiatherosclerotic	Soumyanath, A. Ed. 2006. Traditional Medicines for Modern Times - Antidiabetic Plants. CRC Press, Taylor & Francis Group. Boca Raton, FL. 314 pp.				
Anticancer					
Anticataract					
Anticonvulsant Synergen					
Antidementia					
Antidiabetic	Soumyanath, A. Ed. 2006. Traditional Medicines for Modern Times - Antidiabetic Plants. CRC Press, Taylor & Francis Group. Boca Raton, FL. 314 pp.				
Antiinfarctal	Soumyanath, A. Ed. 2006. Traditional Medicines for Modern Times - Antidiabetic Plants. CRC Press, Taylor & Francis Group. Boca Raton, FL. 314 pp.				
Antiinfertility					
Antiischemic					
Antimaculitic					
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.				
Antineuropathic					
Antioxidant 5 x quercetin					
Antioxidant IC34=10 uM					

Antiradicular 5 x  
quercetin  
Antiretinotic  
Antirheumatic  
Antistroke  
Antitumor  
Antitumor (Bladder)  
Antitumor (Prostate)  
Antitumor (Stomach)  
Antitumor-Promoter  
Cancer-Preventive  
Cardioprotective  
Circulotonic  
Immunomodulator

ALUMINUM Plant -- -- \*

**Activities (5)**

Antisilicotic Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.  
Antivaginitic Martindale's 28th  
Candidicide Martindale's 28th  
Encephalopathic Martindale's 29th  
Pesticide

APIGENIN-6,8-DI-C-GLUCOSIDE Leaf -- -- \*

APIGENIN-6-C-GLUCOSIDE Leaf -- -- \*

APIGENIN-6-C-GLUCOSYL-ARABINOSIDE Leaf -- -- \*

APIGENIN-6-C-GLUCOSYL-O-ARABINOSIDE Leaf -- -- \*

APIGENIN-8-C-ARABINOSYLHEXOSIDE Leaf -- -- Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.

APIGENIN-8-C-GLUCOSYL-O-RHAMNOSIDE Leaf -- -- \*

APIGENIN-8-C-RHAMNOSYLGLUCOSIDE Leaf -- -- Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.

ARGININE Seed 3000.0 13000.0 -0.49 Jim Duke's personal files.\*

**Activities (14)**

Antidiabetic? Wichtl, M. 1984. Teedrogen. Ein Handbuch für Apotheker und Ärzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.  
Antiencephalopathic Martindale's 29th  
Antihepatitic Martindale's 29th  
Antihypertensive  
Antiimpotence  
Antiinfertility 4 g/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
Antioxidant?  
Aphrodisiac 3 g/day  
Diuretic  
Hypoammonemic Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  
NO-Genic  
Pituitary-Stimulant  
Spermigenic 4 g/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
Vasodilator

ASCORBIC-ACID Plant 26.0 120.0 -0.57 \*

**Activities (112)**

Acidulant FEMA 6,000 Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry  
Aldose-Reductase-Inhibitor Chalem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95  
Analgesic 5-10 g/day  
Angiotensin-Receptor-Blocker  
AntiAGE 2,000 mg/day Chalem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

AntiCTS 1,000 mg 3x/day	
AntiCrohn's 50-100 mg/day/orl/man	Martindale's 29th
AntiLyme 500-2,000 mg	
AntiRaynaud's 500 mg 1-2x/day	
Antiaaggregant	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiaging 400 mg/day	
Antiallergic	
Antialzheimeran 2,000-6,000 mg/day	
Antiarthritic 0.2-1 g/day	
Antiasthmatic 1,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiattherosclerotic	
Antibacterial	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticataract 350 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Anticataract 1 g 3x/day	
Anticervicaldysplasic 1,000-2,000 mg/day	
Anticlimacteric 500-5,000 mg/day	
Anticold 1-2 g/man/day	
Antidecubitic 500 mg/man/2x/day	Martindale's 28th
Antidementia	
Antidepressant 2,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidiabetic	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidote (Aluminum)	Economic & Medicinal Plant Research, 6: 189.
Antidote (Cadmium)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Lead)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Paraquat)	Martindale's 28th
Antieczemic 3.5-5 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiedemic 1 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiencephalitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antienometriotic 2,000 mg/day	
Antifatigue 500-1,000 mg	
Antifibrotic 1,000-2,000 mg	
Antigallstone 1,000-3,000 mg/day	
Antigastritic	
Antigingivitic	
Antiglaucomic 2 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihangover 1,000 mg	
Antihemorrhagic 1 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihepatitic 2-6 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihepatotoxic	Economic & Medicinal Plant Research, 6: 189.
Antiherpetic 1-5 g/day	
Antihistaminic 2 g/day orl man	
Antihypertensive	
Antiinfertility 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinflammatory	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antileptic 1.5 g/man/day	Martindale's 28th
Antilithic 1,000-3,000 mg/day	
Antimaculitic	
Antimeasles	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenopausal 500-5,000 mg/day	
Antimigraine	Martindale's 29th
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antineuramidase	
Antinitrosic 1 g/man/day	Martindale's 28th
Antioesity 1 g 3x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiorchitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiosteoarthritis 1 g 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic 500 mg/day	
Antioxidant 100 ppm	
Antiparkinsonian 1 g 2-3x/day	

Antiperiodontitic 1 g 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antipneumonic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Antipodriac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antipoliomyelitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antipyretic	Economic & Medicinal Plant Research, 6: 189.				
Antiradicular	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95				
Antiretinotic					
Antirheumatic					
Antirhinitic 1,000 mg 3x/day					
Antiscorbutic 10 mg/man/day	Martindale's 28th				
Antiseptic MIC=3.3-217 mg/ml	Martindale's 28th				
Antiseptic 4-8 g/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95				
Antishingles	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antispasmodic 500-5,000 mg/day					
Antistress 500-1,000 mg					
Antisyndrome-X 1-4 g/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95				
Antitumor (Gastric)					
Antitumor (Lung)					
Antiulcer					
Antiviral 1-5 g/day					
Apoptotic 1-10 mM					
Asthma-preventive 1,000 mg/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Beta-Adrenergic Receptor Blocker					
Beta-Glucuronidase-Inhibitor 1.5 g/day/man					
Calcium-Antagonist					
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Cardioprotective					
Cold-preventive 1-2 g/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Collagenic					
Detoxicant					
Diuretic 700 mg/man/orl					
Fistula-Preventive	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Hypocholesterolemic 300-1,000 mg/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Hypoglycemic	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95				
Hypotensive 1,000 mg/man/day					
Immunomodulator					
Immunostimulant	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95				
Interferonogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Lithogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Mucolytic 1 g/woman/day	Martindale's 28th				
Pesticide					
Uricosuric 4 g/man/day	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Urinary-Acidulant	Martindale's 29th				
Vasodilator					
Vulnerary	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				

ASH	Seed	19000.0	96000.0	1.45	*
ASH	Plant	18040.0	82000.0	-0.7	*
ASPARTIC-ACID	Seed	--	7000.0	-1.38	Jim Duke's personal files.*

### Activities (3)

Antimorphinic	Martindale's 28th
Neuroexcitant	Martindale's 28th
Roborant	Merck 11th Edition

AVENACIN-A-1	Plant	--	--	*
AVENACIN-A-1	Root	--	--	*
AVENACIN-B-2	Plant	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

AVENACINS	Root	--	--	*
AVENACOSIDE-A	Shoot	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
AVENACOSIDE-A	Seed	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
AVENACOSIDE-B	Shoot	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
AVENACOSIDE-B	Seed	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
AVENACOSIDES	Plant	1000.0	15000.0	*

#### Activities (2)

Fungicide Wichtl, M. 1984. Teedrogen. Ein Handbuch für Apotheker und Ärzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.  
Pesticide

AVENALUMIC-ACID	Fruit	--	--	*
AVENALUMIN-I	Leaf	--	--	*
AVENANTHRAMIDE-G	Shoot	--	22.4	*
AVENANTHRAMIDES	Seed	--	--	*

#### Activities (3)

Antiallergic  
Antiasthmatic  
Antihistaminic

AVENARIN	Plant	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
AVENEIN	Sprout Seedling	--	--	Wealth of India.
AVENIC-ACID-A	Root	--	--	*
AVENIC-ACIDS	Root	--	--	*
AVENIN	Seed	11200.0	185600.0	*

#### Activities (1)

Neuromyostimulant

AVENIN	Root	--	--	*
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#### Activities (1)

Neuromyostimulant

BENZALDEHYDE	Seed	--	--	*
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#### Activities (24)

Allergenic  
Anesthetic  
Antibacterial  
Anticancer  
Antimutagenic  
Antipeptic  
Antiseptic  
Antispasmodic  
Antitumor  
Candidicide  
FLavor FEMA 150-800 Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry  
Immunostimulant  
Insecticide Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.  
Insectifuge 50 ppm J. Stored. Prod. Res., 22:141, 1986.  
Motor-Depressant Buchbauer et al, e.g.Buchbauer et al,1993.Theapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC  
Narcotic Merck 11th Edition  
Nematocide Shovakunaku Zasshi 44: 183

Pesticide	
Sedative	Buchbauer et al, e.g. Buchbauer et al, 1993. Therapeutic properties of essential oils and fragrances. Chap. 12 in Teranishi, R., Buttery, R.G. and Sugisawa, H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Termiticide LD100=5 mg/g	
Tyrosinase- Inhibitor ID50=820 uM	
Tyrosinase- Inhibitor ID50=87 ug/ml	
Tyrosinase- Inhibitor ID50=0.82 mM	
Tyrosinase- Inhibitor ID50=830 uM	

BETA-CAROTENE                      Plant                      16.0                      72.0                      -0.34                      \*

### Activities (53)

Allergenic	
Androgenic?	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiPMS	
Antiacne	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiaging	
Antiarthritic	
Antiasthmatic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticancer	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Anticarcinomic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticervicaldysplasic	
Anticoronary 50 mg/man/2 days	
Antihyperkeratotic	
Antiichthyotic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antileukoplakic	
Antilipoperoxidant IC71=50 ug/ml	
Antilupus 150 mg/man/day/2 mos	Martindale's 28th
Antimaculitic	
Antimastitic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiozenic	
Antipapillomic	
Antiphotophobic 30-300 mg/man/day	Martindale's 29th
Antipityriasic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiporphyrhic 30-300 mg/man/day	Martindale's 28th
Antiproliferant	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Antipsoriac	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradicular	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antirheumatic	
Antistress	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antitumor	Simon, P.W. Carrots and Other Horticultural Crops as a Source of Provitamin A Carotenes. HortScience, 25(12): 1495, 1990.
Antitumor (Breast) IC45=60 ug/ml	
Antitumor (CNS) IC43=45 ug/ml	
Antitumor (Colon) IC43=45 ug/ml	
Antitumor (Lung) IC30=60 ug/ml	
Antitumor (Prostate)	
Antitumor (Stomach) IC26=45 ug/ml	
Antiulcer 12 mg 3x/day/man/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer 15,000-25,000 IU/day	
Antixerophthalmic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
COX-1-Inhibitor IC78=50 ug/ml	
COX-2-Inhibitor IC82=50 ug/ml	
Cancer-Preventive 22 ppm	Jim Duke's personal files.
Chemopreventive	
Colorant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Gastroprotective	
Immunostimulant 180 mg/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Interferon-Synergist	

Phagocytotic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Prooxidant 20 ug/g	
Thymoprotective	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Ubiquit	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

BETA-CYCLOCITRAL	Seed	--	--	*
BETA-HYDROXY-BETA-METHYL-GLUTARIC-ACID	Petiole	--	--	*
BETA-HYDROXY-BETA-METHYL-GLUTARIC-ACID	Hull Husk	--	--	*
BETA-IONONE	Seed	--	--	*

Activities (13)	
Allergenic	
Antibacterial MIC=200 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Anticarcinogenic MIC=100 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Antimelanomic IC50=140 uM/l	
Antitumor	Yu, S.G., Anderson, P.J., and Elson, C.E. 1995. Efficacy of B-Ionone in the Chemoprevention of Rat Mammary Carcinogenesis. J. Agric. Food Chem. 43: 2144-2147.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cytochrome-P450-Inducer	
Fungicide	
Hypocholesterolemic	Yu, S.G., Anderson, P.J., and Elson, C.E. 1995. Efficacy of B-Ionone in the Chemoprevention of Rat Mammary Carcinogenesis. J. Agric. Food Chem. 43: 2144-2147.
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.
P450-Inducer	
Pesticide	
Trichomonicide LD100=100 ug/ml	

BETA-SITOSTEROL	Plant	--	--	Stitt, Paul. Why George should eat broccoli.
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Activities (47)	
Androgenic	
Angiogenic	
Anorexic	Martindale's 28th
Antiadenomic	Merck 11th Edition
Antiandrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antibacterial	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Anticancer (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Anticancer (Cervix)	
Anticancer (Lung)	
Antiedemic IC54=320 mg/kg orl	
Antiestrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Antifertility	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antigonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antihyperlipoproteinaemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiinflammatory	
Antileukemic	
Antilymphomic	
Antimutagenic 250 ug/ml	
Antiphidic 2.3 mg mus	Economic & Medicinal Plant Research, 5: 363.
Antioxidant IC44=10 uM	
Antiprogestational	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antiprostaglandin 30 mg/day/12 wks	
Antiprostataadenomic	Merck 11th Edition
Antiprostatic 10-20 mg 3 x/day/orl man	
Antipyretic	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Antitumor (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Antitumor (Cervix)	
Antitumor (Lung)	

Apoptotic	
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Caspase-8-Inducer	
Estrogenic	
Febrifuge	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Gonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Hepatoprotective	
Hypocholesterolemic 2-6 g/man/day/orl	Martindale's 30th
Hypocholesterolemic 9-3,330 mg/man/day/orl	Martindale's 28th
Hypoglycemic	Ivorra, M.D., Paya, M., and Villar, A. 1989. A Review of Natural Products and Plants as Potential Antidiabetic Drugs. Journal of Ethnopharmacology, 27: 243-275, 1989.
Hypolipidemic 2-6 g/day	
Pesticide	
Spermicide	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Ubiquiot	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Ulcerogenic 500 mg/kg ipr rat	

BETA-SITOSTEROL                      Seed                      --                      --                      \*

**Activities (47)**

Androgenic	
Angiogenic	
Anorexic	Martindale's 28th
Antiadenomic	Merck 11th Edition
Antiandrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antibacterial	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Anticancer (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Anticancer (Cervix)	
Anticancer (Lung)	
Antiedemic IC54=320 mg/kg orl	
Antiestrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Antifertility	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antigonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antihyperlipoproteinaemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiinflammatory	
Antileukemic	
Antilymphomic	
Antimutagenic 250 ug/ml	
Antiophidic 2.3 mg mus	Economic & Medicinal Plant Research, 5: 363.
Antioxidant IC44=10 uM	
Antiprogestational	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antiprostaglandin 30 mg/day/12 wks	
Antiprostataadenomic	Merck 11th Edition
Antiprostatic 10-20 mg 3 x/day/orl man	
Antipyretic	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Antitumor (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Antitumor (Cervix)	
Antitumor (Lung)	
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in Artemisia annua. Plant Science, 75: 161-165, 1991.
Apoptotic	
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Caspase-8-Inducer	
Estrogenic	
Febrifuge	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Gonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Hepatoprotective	

g/man/day/orl	
Hypocholesterolemic 9-3,330 mg/man/day/orl	Martindale's 28th
Hypoglycemic	Ivorra, M.D., Paya, M., and Villar, A. 1989. A Review of Natural Products and Plants as Potential Antidiabetic Drugs. Journal of Ethnopharmacology, 27: 243-275, 1989.
Hypolipidemic 2-6 g/day	
Pesticide	
Spermicide	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Ubiquit	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Ulcerogenic 500 mg/kg ipr rat	

BETA-SITOSTEROL      Leaf      --      --      \*

#### Activities (47)

Androgenic	
Angiogenic	
Anorexic	Martindale's 28th
Antiadenomic	Merck 11th Edition
Antiandrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antibacterial	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Anticancer (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Anticancer (Cervix)	
Anticancer (Lung)	
Antiedemic IC54=320 mg/kg orl	
Antiestrogenic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Antifertility	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antigonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antihyperlipoproteinaemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiinflammatory	
Antileukemic	
Antilymphomic	
Antimutagenic 250 ug/ml	
Antiphidic 2.3 mg mus	Economic & Medicinal Plant Research, 5: 363.
Antioxidant IC44=10 uM	
Antiprogestational	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Antiprostaglandin 30 mg/day/12 wks	
Antiprostadenomic	Merck 11th Edition
Antiprostatic 10-20 mg 3 x/day/orl man	
Antipyretic	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Antitumor (Breast)	Madhavi, D. L., Bomser, J., Smith, M., Singletary, K. 1998. Isolation of Bioactive Constituents from Vaccinium myrtillus (Bilberry) Fruits and Cell Cultures. Plant Sci., 131(1): 95-103.
Antitumor (Cervix)	
Antitumor (Lung)	
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in Artemisia annua. Plant Science, 75: 161-165, 1991.
Apoptotic	
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	Recently became Internat. J. Crude Drug Res. 28(1,2,3,4):1990, page 155.
Caspase-8-Inducer	
Estrogenic	
Febrifuge	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Gonadotrophic	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Hepatoprotective	
Hypocholesterolemic 2-6 g/man/day/orl	Martindale's 30th
Hypocholesterolemic 9-3,330 mg/man/day/orl	Martindale's 28th
Hypoglycemic	Ivorra, M.D., Paya, M., and Villar, A. 1989. A Review of Natural Products and Plants as Potential Antidiabetic Drugs. Journal of Ethnopharmacology, 27: 243-275, 1989.
Hypolipidemic 2-6 g/day	
Pesticide	
Spermicide	Malini, T. and Vanithakumari, G. 1989. Rat Toxicity Studies With B-Sitosterol. Journal of Ethnopharmacology, 28: 221-234, 1990.
Ubiquit	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Ulcerogenic 500 mg/kg ipr rat	

BETAINE                      SNOOT                      --                      2.0                      -0.58                      ↑

**Activities (14)**

Abortifacient  
 Antigastritic                      Martindale's 29th  
 Antihomocystinuric  
 Antimyotrophic  
 Bruchiphobe                      Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.  
 Cardioprotective  
 Diuretic                      Wealth of India.  
 Emmenagogue                      Wealth of India.  
 Ethanolytic  
 Expectorant  
 Hepatoprotective  
 Lipotropic  
 Mucogenic  
 Pesticide

BETAINE                      Root                      --                      0.1                      -0.37                      \*

**Activities (14)**

Abortifacient  
 Antigastritic                      Martindale's 29th  
 Antihomocystinuric  
 Antimyotrophic  
 Bruchiphobe                      Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.  
 Cardioprotective  
 Diuretic                      Wealth of India.  
 Emmenagogue                      Wealth of India.  
 Ethanolytic  
 Expectorant  
 Hepatoprotective  
 Lipotropic  
 Mucogenic  
 Pesticide

BIOTIN                      Seed                      0.132                      1.4                      -0.53                      Jim Duke's personal files.\*

**Activities (4)**

Antialopepic  
 Antidermatitic 3 mg/2x/day                      Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  
 Antineuralgic  
 Antiseborrheic 3 mg/2x/day                      Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

BORON                      Seed                      2.0                      7.0                      -0.81                      Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).

**Activities (4)**

Androgenic 3 mg/man/day  
 Antiosteoarthritis                      Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 Antiosteoporotic 3 mg/man/day  
 Estrogenic 3 mg/man/day

BRASSICASTEROL                      Seed                      --                      --                      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

BUTENYL-ISOTHIOCYANATE                      Seed                      --                      --                      \*

CAFFEIC-ACID                      Plant                      --                      --                      Stitt, Paul. Why George should eat broccoli.

**Activities (102)**

Aldose-Reductase-Inhibitor 4 ug/ml (weak activity)                      Ichikawa, K., et al. 1991. Isolation and Structure Determination of Aldose Reductase Inhibitors from Traditional Thai Medicine, and Syntheses of Their Derivatives. Sankyo Kenkyusho Nempo, 43: 99-110.  
 Allergenic  
 Analgesic  
 AntiHIV EC50=200 ug/ml  
 AntiLegionella  
 Antiadenoviral                      Economic & Medicinal Plant Research, 5: 207.

Antianging	
Antiatherogenic	
Antibacterial	
Anticancer	
Anticarcinogenic	Economic & Medicinal Plant Research, 6: 189.
Antidepressant	
Antiedemic	Economic & Medicinal Plant Research, 6: 189.
Antielastase IC50=93 um/l	
Antielastase IC50=86 ug/ml (475 uM)	
Antiescherichic	
Antiflu	Economic & Medicinal Plant Research, 5: 207.
Antigonadotropic	Jim Duke's personal files.
Antihemolytic 25 uM	Ohnishi, M., Morishita, H., Iwashashi, H., Toda, S., Shirataki, Y., Kimura, M., and Kido, R. 1993. Inhibitory Effects of Chlorogenic Acids on Linoleic Acid Peroxidation and Haemolysis. <i>Phytochemistry</i> . 36(3): 579-583. 1994.
Antihepatoadenomic 200 ppm diet orl mus	
Antihepatotoxic	
Antiherpetic 50 ug/ml	
Antiherpetic EC50=>50 ug/ml	
Antihistaminic	
Antihypercholesterolemic	Economic & Medicinal Plant Research, 6: 189.
Antihyperthyroid	
Antiinflammatory	
Antileukemic	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. <i>Am J Chin Med</i> , 31(1):37-46.
Antileukotriene	
Antimelanogenic	
Antimutagenic	Ki Soon Rhee. Oilseed Food Ingredients Used To Minimize Oxidative Flavor Deterioration in Meat Products. <i>Phenolic Compounds in Food and Their Effects on Health</i> , Ch.18.
Antinitrosaminic	Ki Soon Rhee. Oilseed Food Ingredients Used To Minimize Oxidative Flavor Deterioration in Meat Products. <i>Phenolic Compounds in Food and Their Effects on Health</i> , Ch.18.
Antiophidic	
Antioxidant 50 uM	
Antioxidant IC57=30 ppm	
Antioxidant 1/3 quercetin	
Antioxidant 30 mM	
Antioxidant 1.3 x Vit. E	
Antioxidant 1/2 BHA	
Antiperoxidant IC50=44 uM	<i>Planta Medica</i> , 57: A54, 1991.
Antiperoxidant IC35=200 ug/ml	
Antiperoxidant IC85=100 ug/ml	
Antiproliferant	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. <i>Am J Chin Med</i> , 31(1):37-46.
Antiprostaglandin	
Antiradicular 10 uM	Ohnishi, M., Morishita, H., Iwashashi, H., Toda, S., Shirataki, Y., Kimura, M., and Kido, R. 1993. Inhibitory Effects of Chlorogenic Acids on Linoleic Acid Peroxidation and Haemolysis. <i>Phytochemistry</i> . 36(3): 579-583. 1994.
Antiradicular 1/3 quercetin	
Antiradicular 30 mM	
Antiradicular IC50=32-35 uM	
Antiseptic	
Antispasmodic EC50=3.4-15 uM	<i>Phytotherapy Research</i> , 4: 73.
Antistaphylococcic	
Antistomatitic	Economic & Medicinal Plant Research, 5: 207.
Antisunburn	
Antithiamin	<i>Phenolic Compounds in Food and Their Effects on Health</i> , 69.
Antithyroid	Jim Duke's personal files.
Antitumor 200 ppm diet orl mus	
Antitumor (Skin)	
Antitumor-Promoter IC42=10 uM	<i>Cancer Research</i> , 48: 5941.
Antiulcerogenic	
Antivaccinia	Economic & Medicinal Plant Research, 5: 207.
Antiviral IC50=62.5 ug/ml	
Anxiolytic	
CNS-Active	Wichtl, M. 1984. <i>Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart</i> . 393 pp.
COX-2-Inhibitor IC32=100 uM	
Calcium-Antagonist IC50=1.2 uM rbt	
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli</i> . Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Carcinogenic 2% (diet)	
Chemopreventive	

Choleretic	Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Clastogenic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Co-carcinogenic	
Collagen-Sparing	
Cytoprotective	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Cytotoxic TC50=200 ug/ml	
DNA-Active	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
DNA-Protective	
Diuretic	Wichtl, M. 1984. Teedrogen. Ein Handbuch fur Apotheker und Arzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.
Fungicide MIC=0.4 mg/ml	
Hepatocarcinogenic 400 ppm diet orl mus (in the absence of alcohol)	
Hepatoprotective	Advance in Chinese Medicinal Materials Research. 1985. Eds. H. M. Chang, H. W. Yeung, W. -W. Tso and A. Koo. World Scientific Publishing Co., Philadelphia Pa., page 210.
Hepatotropic	
Histamine-Inhibitor	
Immunostimulant	
Insectifuge	Tunon, H., Thorsell, W., and Bohlin, L. 1993. Mosquito Repelling Activity of Compounds Occurring in Achillea millefolium L. (Asteraceae). Economic Botany 48(2): 111-120, 1994.
Leukotriene-Inhibitor	
Lipoxygenase-Inhibitor IC27=5 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. J. Agric. Food Chem. 38: 688-690.
Lipoxygenase-Inhibitor IC50=62-148 uM	
Lyase-Inhibitor IC50=94-164 uM	
Metal-Chelator	McEvily, A.J., Iyengar, R., and Gross, A.T. Inhibition of Polyphenol Oxidase by Phenolic Compounds. Phenolic Compounds in Food and Their Effects on Health, Ch.25.
Ornithine-Decarboxylase-Inhibitor	Hagerman, A.E. Tannin-Protein Interactions. Phenolic Compounds in Food and Their Effects on Health, Ch.19.
Pesticide	
Prooxidant	
Prostaglandigenic	
Sedative 500 mg	
Sunscreen IC50=2.5 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Sunscreen IC91=5 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Sunscreen IC98=25 mg/l	Lazarova*, G., Kostova, I., Neychev, H. 1992. Photodynamic damage prevention by some hydroxycoumarins. Fitoterapia 64(2): 134-136, 1993.
Tumorigenic	Jim Duke's personal files.
Vulnerary	
Xanthine-Oxidase-Inhibitor IC50=39.21 uM	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livinston, Edinburgh.

CAFFEIC-ACID-ESTER      Seed      --      --      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

CALCIUM      Seed      400.0      4800.0      0.12      \*

#### Activities (28)

AntiPMS 1 g/day	
Antiallergic 500 mg/day	
Antianxiety	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiarrhythmic 500-1,500 mg	
Antiarthritic 1,000 mg/day	
Antiatherosclerotic 500 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticlimacteric 1,000-1,500 mg/day	
Antidepressant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Aluminum)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Lead)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihyperkinetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihypertensive	
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenopausal 1,000-1,500 mg/day	
Antiobesity	
Antiosteoporotic 500-2,000 mg/day	
Antiperiodontitic 750 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antirheumatic 1,000 mg/day	
Antistress 500-1,500 mg/day	
Antitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Calcium-Channel-Blocker					
Diuretic					
Hypocholesterolemic 500 mg/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypotensive 1 g/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Laxative 1,000-1,200 mg					
Tranquilizer 500-1,500 mg/day					
Vasodilator					

CALCIUM Plant 3146.0 14300.0 0.08 \*

**Activities (28)**

AntiPMS 1 g/day					
Antiallergic 500 mg/day					
Antianxiety					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiarrhythmic 500-1,500 mg					
Antiarthritic 1,000 mg/day					
Antiatherosclerotic 500 mg/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticlimacteric 1,000-1,500 mg/day					
Antidepressant					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Aluminum)					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Lead)					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihyperkinetic					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihypertensive					
Antiinsomniac					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenopausal 1,000-1,500 mg/day					
Antiobesity					
Antiosteoporotic 500-2,000 mg/day					
Antiperiodontitic 750 mg/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antirheumatic 1,000 mg/day					
Antistress 500-1,500 mg/day					
Antitic					Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anxiolytic 500-1,500 mg/day					
Calcium-Channel-Blocker					
Diuretic					
Hypocholesterolemic 500 mg/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypotensive 1 g/day					Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Laxative 1,000-1,200 mg					
Tranquilizer 500-1,500 mg/day					
Vasodilator					

CAMPESTANOL Seed -- -- \*

CAMPESTANOL Leaf -- -- \*

CAMPESTEROL Seed -- -- \*

**Activities (2)**

Antioxidant IC37=10 uM					
Hypocholesterolemic					Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.

CARBOHYDRATES Seed 562000.0 775000.0 1.0 \*

CARBOHYDRATES Plant 265000.0 861000.0 1.21 \*

CAROTENE Seed -- 0.22 -1.0 Jim Duke's personal files.\*

CAROTENE Plant 2.6 702.0 0.36 Jim Duke's personal files.\*

CARYOPHYLLENE Seed -- -- \*

**Activities (31)**

Aldose-Reductase-Inhibitor					
Allergenic					
Analgesic					Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Antiacne					
Antiasthmatic					Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antibacterial					
Anticariogenic MIC=>1,600 ug/ml					Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.

Antiedemic	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.				
Antifeedant 500 ppm	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.				
Antiinflammatory IC50=100 uM	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.				
Antileishmanic					
Antionychotic	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.				
Antiproliferant					
Antispasmodic					
Antistaphylococcic					
Antistreptococcic					
Antitumor	Zheng, G-Q., Kenney, P.M., and Lam, L.K.T. Sesquiterpenes From Clove (Eugenia caryophyllata) As Potential Anticarcinogenic Agents. Journal of Natural Products 55(7): 999-1003, 1992.				
Antiulcer	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.				
Candidicide					
Flavor FEMA 20-200	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				
Fungicide					
Gastroprotective	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.				
Insectifuge					
Irritant	Zebowitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.				
Larvicide					
Mosquitocide					
Perfumery	Merck 11th Edition				
Pesticide					
Sedative					
Termitifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.				

CELLULOSE	Plant	--	305000.0	0.0	Jim Duke's personal files.*
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<b>Activities (1)</b>					
Hemostat	Martindale's 29th				

CELLULOSE	Hull Husk	--	350000.0	-0.16	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
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<b>Activities (1)</b>					
Hemostat	Martindale's 29th				

CHLORINE	Seed	500.0	1900.0	3.16	Jim Duke's personal files.*
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<b>Activities (7)</b>					
Antibacterial	Martindale's 29th				
Antiherpetic	Martindale's 29th				
Antiseptic	Martindale's 29th				
Antiviral	Martindale's 29th				
Candidicide	Martindale's 29th				
Fungicide	Martindale's 29th				
Pesticide					

CHLORINE	Plant	1000.0	5700.0	-0.17	Jim Duke's personal files.*
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<b>Activities (7)</b>					
Antibacterial	Martindale's 29th				
Antiherpetic	Martindale's 29th				
Antiseptic	Martindale's 29th				
Antiviral	Martindale's 29th				
Candidicide	Martindale's 29th				
Fungicide	Martindale's 29th				
Pesticide					

CHLOROPHYLL-A	Plant	--	--		Stitt, Paul. Why George should eat broccoli.
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CHLOROPHYLL-B	Plant	--	--		Stitt, Paul. Why George should eat broccoli.
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CHOLEST-7-EN-3-BETA-OL	Seed	--	--		*
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CHOLEST-7-EN-3-BETA-OL	Leaf	--	--		*
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CHOLESTANOL	Leaf	--	--	*
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CHOLESTEROL	Leaf	--	--	*
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**Activities (1)**

Antioxidant IC43=10 uM

CHOLESTEROL	Seed	--	--	*
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**Activities (1)**

Antioxidant IC43=10 uM

CHOLINE	Shoot	--	0.3	-0.77	*
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**Activities (20)**

Antialzheimeran 5-16 g/man/day

Antichoreic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Anticirrhotic 6,000 mg/man/day

Anticystinuric

Antidementia

Antidiabetic

Antidyskinetic 150-200 mg/kg/man/day Martindale's 28th

Antihomocysteine

Antimanic 15-30 g/man/day/orl Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Antinociceptive

Antisteatotic

Cardiodepressant

Cerebrotonic

Cholinergic Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Hepatoprotective

Hypotensive

Ileorelaxant

Lipotropic

Memorigenic

Parasympathomimetic (1/1,000th acetylcholine) Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.

CHOLINE	Seed	134.0	1712.0	0.04	*
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**Activities (20)**

Antialzheimeran 5-16 g/man/day

Antichoreic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Anticirrhotic 6,000 mg/man/day

Anticystinuric

Antidementia

Antidiabetic

Antidyskinetic 150-200 mg/kg/man/day Martindale's 28th

Antihomocysteine

Antimanic 15-30 g/man/day/orl Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Antinociceptive

Antisteatotic

Cardiodepressant

Cerebrotonic

Cholinergic Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Hepatoprotective

Hypotensive

Ileorelaxant

Lipotropic

Memorigenic

Parasympathomimetic (1/1,000th acetylcholine) Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.

CHOLINE	Root	--	0.2	-0.41	*
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**Activities (20)**

Antialzheimeran 5-16 g/man/day

Anticirrhotic 6,000 mg/man/day	
Anticystinuric	
Antidementia	
Antidiabetic	
Antidyskinetic 150-200 mg/kg/man/day	Martindale's 28th
Antihomocysteine	
Antimanic 15-30 g/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antinociceptive	
Antisteatotic	
Cardiodepressant	
Cerebrotonic	
Cholinergic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Hepatoprotective	
Hypotensive	
Ileorelaxant	
Lipotropic	
Memorigenic	
Parasympathomimetic (1/1,000th acetylcholine)	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.

CHROMIUM Plant 0.9 3.9 -0.5 \*

**Activities (24)**

Amphiglycemic?	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
AntiAGE 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
AntiCFS 200 ug	
Antiacne	
Antiaging 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiatherosclerotic 20 ug/day	
Anticorneotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic 200-1,000 ug	
Antidote (Lead)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antifatigue 200 ug	
Antiglycosuric 200-1,000 ug	
Antibesity 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antisyndrome-X 200-800 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitriglyceride 20 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antitriglyceride 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Cardioprotective	
Energizer	
Hypocholesterolemic 20 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypocholesterolemic 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Hypoglycemic 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Hypotensive 200-1,000 ug	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Immunomodulator	
Insulinogenic	
Memorigenic	

CITRIC-ACID Hull Husk -- -- \*

**Activities (23)**

Allergenic	
Alpha-Amylase-Inhibitor	
Antiaphthc 20,000 ppm	Martindale's 28th
Antiatherosclerotic	
Antibacterial	
Anticalculic	
Anticoagulant	Merck 11th Edition

Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant Synergist	Merck 11th Edition
Antiseborrheic	
Antiseptic	Martindale's 29th
Antitubercular	
Antitumor	Economic & Medicinal Plant Research, 6: 235.
Disinfectant	Martindale's 29th
FLavor FEMA 370-4,400	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Hemostat	
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Laxative?	Lawrence Review of Natural Products, Sep-91.
Litholytic	Martindale's 29th
Mycobactericide	
Odontolytic	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Refrigerant	Martindale's 28th

CITRIC-ACID                      Petiole                      --                      --                      \*

**Activities (23)**

Allergenic	
Alpha-Amylase-Inhibitor	
Antiaphthic 20,000 ppm	Martindale's 28th
Antiatherosclerotic	
Antibacterial	
Anticalculic	
Anticoagulant	Merck 11th Edition
Antileishmanic	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant Synergist	Merck 11th Edition
Antiseborrheic	
Antiseptic	Martindale's 29th
Antitubercular	
Antitumor	Economic & Medicinal Plant Research, 6: 235.
Disinfectant	Martindale's 29th
FLavor FEMA 370-4,400	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Hemostat	
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Laxative?	Lawrence Review of Natural Products, Sep-91.
Litholytic	Martindale's 29th
Mycobactericide	
Odontolytic	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Refrigerant	Martindale's 28th

COBALT                      Seed                      --                      0.32                      -0.19                      Jim Duke's personal files.\*

**Activities (2)**

Cardiomyopathogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Erythrocytogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

COBALT                      Plant                      0.4                      1.7                      -0.42                      \*

**Activities (2)**

Cardiomyopathogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Erythrocytogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

COLAMINE                      Seed                      --                      --                      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

COPPER                      Seed                      2.4                      25.7                      0.99                      Jim Duke's personal files.\*

**Activities (12)**

Antianemic	
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Antidiabetic 2-4 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antifatigue	
Antiinflammatory	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antinociceptive	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic	
Cardioprotective	
Contraceptive	Martindale's 28th
Hypocholesterolemic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Immunomodulator	
Schizophrenigenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

COPPER Plant -- 4.0 -1.11 Jim Duke's personal files.\*

**Activities (12)**

Antianemic	
Antiarthritic	
Antidiabetic 2-4 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antifatigue	
Antiinflammatory	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antinociceptive	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic	
Cardioprotective	
Contraceptive	Martindale's 28th
Hypocholesterolemic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Immunomodulator	
Schizophrenigenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

CYSTINE Seed 1000.0 5000.0 1.29 Jim Duke's personal files.\*

**Activities (2)**

Adjuvant	Merck 11th Edition
Antihomocystinuric	Martindale's 29th

DAUCOSTEROL Seed -- -- \*

**Activities (5)**

Aldose-Reductase-Inhibitor 0.1 mM/ rat (weak activity, 31.9% inhibition)	Fujita, T., Ohira, K., Miyatake, K., Nakano, Y., Nakayama, M. 1995. Inhibitory Effect of Perillosides A and C, Related Monoterpene Glucosides on Aldose Reductase and Their Structure-Activity Relationships. Chem Pharm Bull, 43(6): 920-926.
Antileukemic	
Antispasmodic 20 mg/kg	=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
Antitumor	
Hypoglycemic	Economic & Medicinal Plant Research, 6: 158.

DEC-TRANS-2-EN-1-AL Seed -- -- \*

DEC-TRANS-2-TRANS-4-DIEN-1-AL Seed -- -- \*

DELTA-5-AVENASTEROL Seed -- -- \*

**Activities (1)**

Antioxidant	
DELTA-7-AVENASTEROL	Seed -- -- Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied Research Centre, University of Qatar, Kingprint, Richmond, UK, 1986.

**Activities (1)**

Antioxidant	
DELTA-7-STIGMASTEROL	Seed -- -- List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
DELTA-AMINO-LEVULINIC-ACID	Sprout Seedling -- -- *
DIADENOSINE-TETRAPHOSPHORIC-ACID	Sprout Seedling -- -- List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
DIAMINO-PROPANE	Sprout Seedling -- -- *

DIMETHOXY-BUTYL-BENZENE	Petiole	--	--	*	
DIMETHOXY-BUTYL-BENZENE	Hull Husk	--	--	*	
ERGOTHIONEINE	Seed	--	--	*	
FAT	Seed	11000.0	97000.0	-0.89	*
FAT	Plant	1540.0	7000.0	-0.65	*
FERULIC-ACID	Seed	--	--	*	

### Activities (61)

Allelopathic	Holappa, L.D., and Blum*, U. 1991. Effects of Exogenously Applied Ferulic Acid, a Potential Allelopathic Compound, on Leaf Growth, Water Utilization, and Endogenous Abscisic Acid Levels of Tomato, Cucumber, and Bean. <i>J. of Chemical Ecology</i> , 17(5): 865.
Analgesic	Advance in Chinese Medicinal Materials Research. 1985. Eds. H. M. Chang, H. W. Yeung, W. -W. Tso and A. Koo. World Scientific Publishing Co., Philadelphia Pa., page 69.
Antiaggregant	Ozaki, Y. and Ma, J-P. 1989. Inhibitory Effects of Tetramethylpyrazine and Ferulic Acid on Spontaneous Movement of Rat Uterus in Situ. <i>Chem. Pharm. Bull.</i> 38(6): 1620-1623, 1990.
Antiallergic	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antiarrhythmic	
Antibacterial	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Anticancer (Colon)	
Anticancer (Forestomach)	
Anticancer (Liver)	
Anticancer (Skin)	
Anticarcinogenic	
Antidysmenorrhic	
Antiestrogenic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antihepatotoxic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antiherpetic	
Antiinflammatory	Hagerman, A.E. Tannin-Protein Interactions. <i>Phenolic Compounds in Food and Their Effects on Health</i> , Ch.19.
Antileukemic IC50=25-56 ug/ml	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. <i>Am J Chin Med</i> , 31(1):37-46.
Antimitotic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antimutagenic	Ki Soon Rhee. <i>Oilseed Food Ingredients Used To Minimize Oxidative Flavor Deterioration in Meat Products. Phenolic Compounds in Food and Their Effects on Health</i> , Ch.18.
Antineoplastic (Stomach)	
Antinitrosaminic	Ki Soon Rhee. <i>Oilseed Food Ingredients Used To Minimize Oxidative Flavor Deterioration in Meat Products. Phenolic Compounds in Food and Their Effects on Health</i> , Ch.18.
Antioxidant 3,000 uM	
Antioxidant IC51=200 ppm	
Antioxidant 1/3 quercetin	
Antioxidant 1/2 BHA	
Antioxidant EC50=9-15 ug/ml	
Antiradicular EC50=9-15 ug/ml	
Antiradicular IC50=116-124 uM	
Antiserotonin	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antispasmodic	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antithrombic	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antitumor	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Antitumor (Colon)	
Antitumor (Forestomach)	
Antitumor (Liver)	
Antitumor (Skin)	
Antitumor-Promoter IC46=10 uM	Cancer Research, 48: 5941.
Antiviral	Vlietinck, A.J. and Domisse, R.A. eds. 1985. <i>Advances in Medicinal Plant Research.</i> Wiss. Verlag. Stuttgart.
Arteriodilator	Ozaki, Y. and Ma, J-P. 1989. Inhibitory Effects of Tetramethylpyrazine and Ferulic Acid on Spontaneous Movement of Rat Uterus in Situ. <i>Chem. Pharm. Bull.</i> 38(6): 1620-1623, 1990.
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli.</i> Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Cardiac	Ozaki, Y. and Ma, J-P. 1989. Inhibitory Effects of Tetramethylpyrazine and Ferulic Acid on Spontaneous Movement of Rat Uterus in Situ. <i>Chem. Pharm. Bull.</i> 38(6): 1620-1623, 1990.
Cholagogue	Pharmazie, 46: 156, 1991.

LU., Essex UK, 302 pp, 1968, reprint 1969.

Fungicide	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Hepatoprotective	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livingstone, Edinburgh.
Hepatotropic	
Herbicide	Angewandte Botanik 68(5/6)=1994. Page 195.
Hydrocholeric	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypolipidemic	
Immunostimulant	Economic & Medicinal Plant Research, 1: 124.
Insectifuge	Tunon, H., Thorsell, W., and Bohlin, L. 1993. Mosquito Repelling Activity of Compounds Occurring in Achillea millefolium L. (Asteraceae). Economic Botany 48(2): 111-120, 1994.
Metal-Chelator	McEvily, A.J., Iyengar, R., and Gross, A.T. Inhibition of Polyphenol Oxidase by Phenolic Compounds. Phenolic Compounds in Food and Their Effects on Health, Ch.25.
Ornithine-Decarboxylase-Inhibitor	Hagerman, A.E. Tannin-Protein Interactions. Phenolic Compounds in Food and Their Effects on Health, Ch.19.
Pesticide	
Phagocytotic	
Preservative	Merck 11th Edition
Prostaglandigenic	
Prostaglandin-Synthesis-Inhibitor 0.58-3.2 mM	Xu, L. N., Yu, W. G., Tian, J. Y., Liu, Q. Y. 1990. Effect of Sodium Ferulate on Arachidonic Acid Metabolism. Yao Hsueh Hsueh Pao, 25(6): 412-416.
Sunscreen	Chemical Marketing Reporter; a weekly tabloid, 9/10/92.
Uterosecative 30-100 mg/kg ivn rat	Ozaki, Y. and Ma, J-P. 1989. Inhibitory Effects of Tetramethylpyrazine and Ferulic Acid on Spontaneous Movement of Rat Uterus in Situ. Chem. Pharm. Bull. 38(6): 1620-1623, 1990.

FERULIC-ACID-ESTER	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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FIBER	Seed	10000.0	289000.0	1.22	*
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**Activities (15)**

Angiotensin-Receptor-Blocker	
Antidiabetic	
Antihypertensive	
Antiobesity	
Antitumor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Beta-Blocker	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Diuretic	
Hypocholesterolemic	
Hypotensive 10 g/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Hypouricemic	
Laxative	
Vasodilator	

FIBER	Plant	122000.0	417000.0	1.44	Jim Duke's personal files.*
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**Activities (15)**

Angiotensin-Receptor-Blocker	
Antidiabetic	
Antihypertensive	
Antiobesity	
Antitumor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Beta-Blocker	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Diuretic	
Hypocholesterolemic	
Hypotensive 10 g/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Hypouricemic	
Laxative	
Vasodilator	

FIBER(CRUDE)	Plant	--	173000.0	1.28	*
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FIBER(DIETARY)	Plant	--	620000.0	2.77	*
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FOLACIN	Seed	--	0.75	-0.77	*
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AntiSpina-Bifida	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antianemic 5-20 mg/man/day	
Anticervicaldysplastic 8-30 mg/wmn/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidepressant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antigingivitic 2-5 mg/day/man	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimyelotoxic 5 mg/day/orl/man	Martindale's 29th
Antineuropathic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiperiodontic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anti plaque	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antipsychotic	Martindale's 29th
Hematopoietic	Merck 11th Edition
Uricosuric	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Xanthine-Oxidase-Inhibitor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

FOLIC-ACID                      Seed                      --                      0.75                      -0.36                      Jim Duke's personal files.\*

### Activities (23)

AntiSpina-Bifida	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antianemic 5-20 mg/man/day	
Anticervicaldysplastic 8-30 mg/wmn/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticoronary 400 ug/man/day	
Antidementia 10-20 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidepressant 800 ug/day	
Antigingivitic 2-5 mg/day/man	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antigout 10-40 mg/day	
Antiinfertility	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimetaplastic 10 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimyelotoxic 5 mg/day/orl/man	Martindale's 29th
Antineuropathic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiperiodontal 1 mg day	
Anti plaque	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antipolyp (preventive)	
Antipsychotic	Martindale's 29th
Cancer-Preventive	
Hematopoietic	Merck 11th Edition
Immunostimulant	
Uricosuric	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Xanthine-Oxidase-Inhibitor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

FORMALDEHYDE                      Seed                      --                      --                      \*

### Activities (12)

Allergenic	
Anesthetic	Martindale's 29th
Anticystitic	Martindale's 29th
Antiplantar	Martindale's 29th
Antiseptic	Martindale's 29th
Antiviral	Martindale's 29th
Fungicide	Martindale's 29th
Irritant	Martindale's 29th
Mutagenic	Martindale's 29th
Neoplastic	Martindale's 29th
Pesticide	
Scolicide	Martindale's 29th

FRUCTOSE                      Root                      --                      --                      \*

Antialcoholic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antidiabetic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihangover	
Antiketotic	Merck 11th Edition
Antinauseant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Laxative	
Neoplastic	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Sweetener 2 x glucose	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

FRUCTOSE                      Plant                      --                      --                      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

#### Activities (8)

Antialcoholic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antidiabetic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihangover	
Antiketotic	Merck 11th Edition
Antinauseant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Laxative	
Neoplastic	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Sweetener 2 x glucose	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

FUR-2-ALDEHYDE                      Seed                      --                      --                      \*

FURFURAL                      Hull Husk                      100000.0                      132000.0                      \*

#### Activities (6)

Antiseptic	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
FLavor FEMA 1-30	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	
Insecticide	
Irritant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Pesticide	

GAMMA-MUUROLENE                      Seed                      --                      --                      \*

GERANIOL-ACETONE                      Seed                      --                      --                      \*

GLUCOSE                      Plant                      --                      --                      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

#### Activities (7)

Acetylcholinergic	
Antiedemic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihepatotoxic	Merck 11th Edition
Antiketotic	Merck 11th Edition
Antivaricose	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hyperglycemic	Merck 11th Edition
Memory-Enhancer	Science News, 138: 189, 1990.

GLUCOVANILLIN                      Hull Husk                      --                      --                      List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

GLUTAMIC-ACID                      Seed                      29000.0                      31000.0                      -0.45                      Jim Duke's personal files.\*

#### Activities (8)

Antialkali? 500-1,000 mg/day/or/man	Martindale's 29th
Antiepileptic	
Antihyperammonemic	Martindale's 29th
Antilithic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiprostatic 125-250 mg 3 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiretardation	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Anxiolytic	Merck 11th Edition

GLUTAMIC-ACID Plant -- 19000.0 -0.18 Jim Duke's personal files.\*

**Activities (8)**

Antialkali? 500-1,000 mg/day/orl/man Martindale's 29th  
 Antiepileptic  
 Antihyperammonemic Martindale's 29th  
 Antilithic Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  
 Antiproststatic 125-250 mg 3 x/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 Antiretardation Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.  
 Anxiolytic Merck 11th Edition  
 Neurotoxic Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

GLUTARIC-ACID Petiole -- -- \*

GLUTARIC-ACID Hull Husk -- -- \*

GLUTEN Seed -- -- Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

**Activities (2)**

Dermatitogenic Martindale's 28th  
 Ulcerogenic Martindale's 29th

GLYCINE Seed -- 2000.0 -1.29 Jim Duke's personal files.\*

**Activities (12)**

Antiacid Martindale's 29th  
 Antialdosteronic Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  
 Antidote (Hypoglycin-A) Martindale's 29th  
 Antiencephalopathic Martindale's 29th  
 Antigastric Martindale's 29th  
 Antiproststatic 125-250 mg 3 x/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 Antipruritic Merck 11th Edition  
 Antisickling Ekeke, G.I. and Shode, F.O. 1988. Phenylalanine is the Predominant Antisickling Agent in *Cajanus cajan* Seed Extract. *Planta Medica* 56(1): 41, 1990.  
 Antiulcer Martindale's 29th  
 Cancer-Preventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.  
 Neuroinhibitor Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 Uricosuric

GRAMININE Rhizome -- -- List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

GUANINE Plant -- -- List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

**Activities (1)**

Essential Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

HEPTAN-1-AL Seed -- -- \*

HEPTANAL Seed -- -- \*

HEX-CIS-3-EN-1-OL Seed -- -- \*

HEX-TRANS-3-ENYL-ACETATE Seed -- -- \*

HEXAN-1-AL Seed -- -- \*

HEXANAL Seed -- -- \*

**Activities (5)**

Antibacterial MBC=800 ug/ml  
 Antisalmonella MIC=400 ug/ml  
 Antiseptic 400-800 ug/ml  
 FLavor FEMA <1-5 Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry  
 Pesticide

<b>Activities (1)</b>					
FLAVOR FEMA 3-25	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				
HISTIDINE	Seed	1000.0	6000.0	-0.03	Jim Duke's personal files.*
<b>Activities (7)</b>					
Antiarteriosclerotic					
Antinephritic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antioxidant					
Antiulcer					
Antiuremic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Oxidant					
HORDENINE	Leaf	--	--		Wealth of India.
<b>Activities (8)</b>					
Antiasthmatic					
Antidiarrheic 35 mg/kg scu dog	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.				
Antifeedant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Bronchorelaxant					
Cardiotonic 2 mg/cat ivn	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.				
Hepatoprotective					
Pesticide					
Vasoconstrictor					
HYPOXANTHIN	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
INDOLE-3-ACETIC-ACID-GLUCOPROTEIN	Seed	--	--		*
INDOLE-3-ACETIC-ACID-GLUCOPROTEIN	Shoot	--	--		*
IODINE	Plant	--	0.154	-0.45	Jim Duke's personal files.*
<b>Activities (12)</b>					
Acnegenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antibacterial					
Antigoiter	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antiseptic					
Antithyrototoxic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antiviral					
Dermatitigenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Fungicide					
Goitrogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Hyperthyroid >1 mm/day/diet					
Protisticide					
Thyrotropic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
IRON	Seed	20.0	300.0	0.69	Jim Duke's personal files.*
<b>Activities (6)</b>					
Antiakathisic	Martindale's 29th				
Antianemic	Martindale's 29th				
Anticanker					
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antimenorrhagic 100 mg/day/wmn/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Prooxidant					
IRON	Plant	3.0	13.5	-0.72	*
<b>Activities (6)</b>					

Antianemic	Martindale's 29th
Anticanker	
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antimenorrhagic 100 mg/day/wmn/ori	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Prooxidant	

ISOLEUCINE Seed 4000.0 9000.0 -0.19 Jim Duke's personal files.\*

**Activities (3)**

Antiencephalopathic?	Martindale's 29th
Antipellagic	Martindale's 28th
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

ISOLEUCINE Plant -- 13000.0 0.63 Jim Duke's personal files.\*

**Activities (3)**

Antiencephalopathic?	Martindale's 29th
Antipellagic	Martindale's 28th
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

ISOORIENTIN Leaf -- -- \*

**Activities (4)**

Antioxidant	
Antiperoxidant	Planta Medica, 57: A110, 1991.
Larvostat IC50=2.6-3.5 mM/kg diet	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Pesticide	

ISOORIENTIN-2'-O-ALPHA-L-ARABINOSIDE Leaf -- -- \*

ISOORIENTIN-2'-O-ARABINOSIDE Leaf -- -- \*

ISOORIENTIN-2'-O-BETA-D-DIGLYCOSIDE Leaf -- -- \*

ISOORIENTIN-7-O-BETA-D-DIGLYCOSIDE Leaf -- -- \*

ISOPROPYL-TARTARIC-ACID Hull Husk -- -- \*

ISOSWERTISIN-2'-O-ALPHA-L-RHAMNOSIDE Leaf -- -- \*

ISOSWERTISIN-2'-O-ALPHA-L-RHAMNOSIDE Shoot -- -- \*

ISOSWERTISIN-2'-RHAMNOSIDE Leaf -- 16.0 \*

ISOSWERTISIN-O'-RHAMNOSIDE Leaf -- 16.0 \*

ISOVITEXIN Sprout Seedling -- -- \*

**Activities (4)**

ACE-Inhibitor IC50=0.28 mM/l	
Antioxidant #NAME?	
Antioxidant >BHA	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

ISOVITEXIN Plant -- -- Stitt, Paul. Why George should eat broccoli.

**Activities (4)**

ACE-Inhibitor IC50=0.28 mM/l	
Antioxidant #NAME?	
Antioxidant >BHA	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

ISOVITEXIN--O-ARABINOSIDE Sprout -- -- \*

ISOVITEXIN-2'-O-ALPHA-L-ARABINOSIDE	Shoot	--	--		*
ISOVITEXIN-2'-O-ARABINOSIDE	Leaf	--	--		*
ISOVITEXIN-2'-O-RHAMNOSIDE	Stem	--	--		*
KILOCALORIES	Seed	3740.0	4710.0	-0.12	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
KILOCALORIES	Plant	4529.0	4540.0	1.14	*
LEUCINE	Seed	6000.0	14000.0	-0.29	Jim Duke's personal files.*

#### Activities (2)

Antiencephalopathic Essential Martindale's 29th  
Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

LEUCINE	Plant	--	18000.0	0.49	Jim Duke's personal files.*
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#### Activities (2)

Antiencephalopathic Essential Martindale's 29th  
Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

LICHENIN	Seed	--	--		*
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LIGNIN	Hull Husk	100000.0	150000.0	-1.0	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
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#### Activities (13)

AntiHIV  
Antibacterial  
Anticancer  
Anticoronary  
Antidiarrheic Martindale's 29th  
Antinitrosaminic  
Antioxidant  
Antitumor  
Antiviral  
Chelator  
Hypocholesterolemic  
Laxative  
Pesticide

LIGNIN	Plant	--	85000.0	-0.97	Jim Duke's personal files.*
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#### Activities (13)

AntiHIV  
Antibacterial  
Anticancer  
Anticoronary  
Antidiarrheic Martindale's 29th  
Antinitrosaminic  
Antioxidant  
Antitumor  
Antiviral  
Chelator  
Hypocholesterolemic  
Laxative  
Pesticide

LIMONENE	Seed	--	--		*
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#### Activities (60)

AChE-Inhibitor Grundy, D. L. and Still, C. C., Inhibition of acetylcholinesterases by pulegone-1,2-epoxide, Oest. Biochem. & Physiol., 23, 1985, 383-8.  
Acaricide LC100=8 uM  
Allelochemic  
Allergenic 1/20th carene  
Antiacetylcholinesterase IC22-26=1.2 mM

Antialzheimeran?	Grundy, D. L. and Still, C. C., Inhibition of acetylcholinesterases by pulegone-1,2-epoxide, <i>Oest. Biochem. &amp; Physiol.</i> , 23, 1985, 383-8.
Antiasthmatic	
Antibacterial	Revista Itiliana Eppos, 12: 5, 1994.
Anticancer	
Antiesophagitic	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory	
Antilithic	
Antilymphomic	
Antimetastatic (Stomach)	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antiobesity	
Antiseptic	
Antispasmodic ED50=0.197 mg/ml	Fitoterapia No.59-1984.
Antitumor	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Pancreas)	
Antitumor (Prostate)	
Antitumor (Stomach)	
Antiviral	
Apoptotic	
Bronchoprotectant	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Chemopreventive	
Cholesterolytic	
Detoxicant	
Enterocontractant	J. Aromatherapy 4: 22.
Expectorant	
FLavor	
Fungiphilic	J. Agric. Food Chem. 43: 2283.
Fungistat	
GST-Inducer	
Herbicide IC50=45 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Histaminic	
Immunomodulator	
Insecticide 0.37 uM/fly	
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Interleukin-6-Inhibitor	
Irritant	
Lipolytic	
Myorelaxant 50 mg/kg	
NO-Genic	
Nematicide IC=100 ug/ml	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Omithine-Decarboxylase-Inhibitor ~750 mg/kg (diet)	
Ozone-Scavenger	
P450-Inducer	
Peristaltic	
Pesticide	
Photosensitizer	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Sedative ED=1-32 mg/kg	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)
Transdermal	

LOPHENOL	Leaf	--	--	*
LOPHENOL	Seed	--	--	*
LUTEOLIN-6-C-GLUCOSIDE	Leaf	--	--	*
LUTEOLIN-6-C-GLUCOSYL-ARABINOSIDE	Leaf	--	--	*
LUTEOLIN-6-C-GLUCOSYL-O-ARABINOSIDE	Leaf	--	--	*

**Activities (4)**

Antialkalotic	Martindale's 29th
Antiherpetic 0.5-3 g/day	
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypoarginanemic 250 mg/kg	Martindale's 29th

LYSINE Plant -- 14000.0 0.48 Jim Duke's personal files.\*

**Activities (4)**

Antialkalotic	Martindale's 29th
Antiherpetic 0.5-3 g/day	
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypoarginanemic 250 mg/kg	Martindale's 29th

MAGNESIUM Seed 300.0 2900.0 -0.02 Jim Duke's personal files.\*

**Activities (65)**

AntiCFS	
AntiLyme 400-1,000 mg	
AntiMS	
AntiPMS 400-800 mg/day/wmn/orl	
AntiPMS 400-800 mg/day/wmn orl	
AntiRaynaud's 280-350 mg/day	
Antiaggregant 400 mg/day	
Antialcoholic	
Antianginal 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antianorectic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antianxiety 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiarrhythmic 400 mg/day	
Antiarthritic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiasthmatic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiattherosclerotic 400 mg/day	
Anticephalagic	
Anticlimacteric 500-750 mg/day	
Anticonvulsant	Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.
Anticoronary 400 mg/day	Chalem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidepressant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic 400-800 mg/man/day	
Antidysmenorrheic 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidometriotic 500 mg/day	
Antienterotic	
Antiepileptic 450 mg/day	
Antifatigue	
Antifibromyalgic 200-300 mg 3x/day	
Antigastroic	
Antiglaucomic	
Antihyperkinetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihypertensive	
Antihypoglycemic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiinflammatory 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antilithic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimastalgic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimenopausal 500-750 mg/day	
Antimigraine 200 mg/day/man	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimitral-valve-prolapse	
Antinephrolytic	
Antineurotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

mg/day/wmn/orl

Antiplaque 500-1,000 mg/day

Antiretinopathic 400 mg/day

Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Antispasmodic

Antispasmophilic 500 mg/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antistress 500-750 mg/day

Antistroke 400 mg/day

Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Antisyndrome-X 400 mg/man/day

Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Anxiolytic 500-750 mg/day

CNS-Depressant

Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.

Calcium-Antagonist

Cardioprotective

Diuretic

Hypocholesterolemic 400 mg/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Hypotensive 260-500 mg/day

Immunomodulator

Insulinogenic 400 mg/day

Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Laxative 300-500 mg/day

Litholytic

Myorelaxant 100 mg 4 x/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Neurotransmitter

Tranquilizer 500-750 mg/day

Uterorelaxant 100 mg 4 x/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Vasodilator

MAGNESIUM

Plant

2640.0

12000.0

2.46

\*

Activities (65)

AntiCFS

AntiLyme 400-1,000 mg

AntiMS

AntiPMS 400-800 mg/day/wmn/orl

AntiPMS 400-800 mg/day/wmn orl

AntiRaynaud's 280-350 mg/day

Antiaggregant 400 mg/day

Antialcoholic

Antianginal 400 mg/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antianorectic

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Antianxiety 400 mg/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antiarrhythmic 400 mg/day

Antiarthritic

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Antiasthmatic

Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Antiatheosclerotic 400 mg/day

Anticephalagic

Anticlimacteric 500-750 mg/day

Anticonvulsant

Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.

Anticoronary 400 mg/day

Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95

Antidepressant

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Antidiabetic 400-800 mg/man/day

Antidysmenorrhic 100 mg 4 x/day

Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antidendometriotic 500 mg/day

Antienterotic

Antiepileptic 450 mg/day

Antifatigue

Antifibromyalgic 200-300 mg 3x/day

Antigastrotic

Antiglaucomic

Antihyperkinetic

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Antihypertensive

Antihypoglycemic

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

x/day	
Antisomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antilithic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimastalgic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimenopausal 500-750 mg/day	
Antimigraine 200 mg/day/man	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimitral-valve-prolapse	
Antinephrolytic	
Antineurotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiosteoporotic 500-1,000 mg/day/wmn/orl	
Antiplatelet 500-1,000 mg/day	
Antiretinopathic 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antispasmodic	
Antispasmodic 500 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antistress 500-750 mg/day	
Antistroke 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antisyndrome-X 400 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Anxiolytic 500-750 mg/day	
CNS-Depressant	Facciola, S. 1998. Cornucopia - A Source Book of Edible Plants. Kampong Publications, Vista CA. 713 pp.
Calcium-Antagonist	
Cardioprotective	
Diuretic	
Hypocholesterolemic 400 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Hypotensive 260-500 mg/day	
Immunomodulator	
Insulinogenic 400 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Laxative 300-500 mg/day	
Litholytic	
Myorelaxant 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Neurotransmitter	
Tranquilizer 500-750 mg/day	
Uterorelaxant 100 mg 4 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Vasodilator	

MALIC-ACID                      Petiole                      --                      --                      \*

**Activities (15)**

Antiatherosclerotic	
Antibacterial	
Antifibromyalgic 300 mg 3x/day	
Antioxidant Synergist	Merck 11th Edition
Antiseborrheic	
Antiseptic	Martindale's 29th
Antitubercular	
Antitumor	Economic & Medicinal Plant Research, 6: 235.
Bacteristat	
Bruchiphobe	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Hemopoietic	
Laxative?	Lawrence Review of Natural Products, Sep-91.
Mycobactericide	
Pesticide	
Sialogogue	Martindale's 29th

MALIC-ACID                      Hull Husk                      --                      --                      \*

**Activities (15)**

Antiatherosclerotic	
Antibacterial	
Antifibromyalgic 300 mg 3x/day	
Antioxidant Synergist	Merck 11th Edition
Antiseborrheic	
Antiseptic	Martindale's 29th
Antitubercular	

Bacteristat	
Bruchiphobe	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Hemopoietic	
Laxative?	Lawrence Review of Natural Products, Sep-91.
Mycobactericide	
Pesticide	
Sialogogue	Martindale's 29th

MALONIC-ACID                      Petiole                      --                      --                      \*

**Activities (1)**

Irritant    Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

MALONIC-ACID                      Hull Husk                      --                      --                      \*

**Activities (1)**

Irritant    Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

MANGANESE                      Seed                      20.0                      204.0                      1.87                      Jim Duke's personal files.\*

**Activities (14)**

AntiPMS	
Antialcoholic	Forest H. Nielsen, USDA, Grand Forks, various publications.
Antianemic	Martindale's 28th
Antiarthritic	
Antidiabetic 3-5 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidiabetic 10-30 mg/man/day	
Antidiscotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidyskinetic	Martindale's 28th
Antiepileptic 450 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic	
Antiototic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antioxidant	
Antisyndrome-X 10-30 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Hypoglycemic 10-30 mg/man/day	

MANGANESE                      Plant                      0.1                      0.5                      -0.69                      \*

**Activities (14)**

AntiPMS	
Antialcoholic	Forest H. Nielsen, USDA, Grand Forks, various publications.
Antianemic	Martindale's 28th
Antiarthritic	
Antidiabetic 3-5 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidiabetic 10-30 mg/man/day	
Antidiscotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidyskinetic	Martindale's 28th
Antiepileptic 450 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoporotic	
Antiototic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antioxidant	
Antisyndrome-X 10-30 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Hypoglycemic 10-30 mg/man/day	

MELATONIN                      Seed                      --                      --                      Hattori, A., et. al. 1995. Identification of Melatonin in Plants and its Effects on Plasma Melatonin Levels and Binding to Melatonin Receptors in Vertebrates. Biochem. Mol. Biol. Int., 35(3): 627-634.

**Activities (23)**

Anaphrodisiac	Medline (post 1990 searches filed in my computer)
Antiaggregant	Medline (post 1990 searches filed in my computer)
Anticonvulsant 25 ug/gerbil/scu	Medline (post 1990 searches filed in my computer)
Antidepressant	Medline (post 1990 searches filed in my computer)

Antiinsomniac 0.1-10 mg/man	
Antioxidant	Medline (post 1990 searches filed in my computer)
Antiradicular 0.2-0.4 mg/kg	
Antithyretropic	Medline (post 1990 searches filed in my computer)
Aphrodisiac	Medline (post 1990 searches filed in my computer)
COX-2-Inhibitor	Newmark, T. M. and Schulick, P. 2000. Herbal Cox-2 Inhibition - Nature's Challenge to Arthritis, Cancer & Alzheimer's Disease. Hohm Press, Prescott AZ.
Contraceptive	Medline (post 1990 searches filed in my computer)
Cyclooxygenase-Inhibitor	Medline (post 1990 searches filed in my computer)
Depressant	Medline (post 1990 searches filed in my computer)
GABA-nergic	Medline (post 1990 searches filed in my computer)
Gonadotrophic	Medline (post 1990 searches filed in my computer)
Hypnotic 0.1-0.3 mg/man	
Hypocholesterolemic	Medline (post 1990 searches filed in my computer)
Hypothermic 1-10 mg/man	
Immunostimulant	Medline (post 1990 searches filed in my computer)
Progesteronigenic	Medline (post 1990 searches filed in my computer)
Serotoninerpic	Medline (post 1990 searches filed in my computer)
Thyrotropic	Medline (post 1990 searches filed in my computer)

METHIONINE                      Seed                      1000.0                      4000.0                      -0.08                      Jim Duke's personal files.\*

**Activities (15)**

Anticataract	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidote (Acetaminophen) 10 g/16hr/man/orl	Martindale's 29th
Antidote (Paracetamol) 10 g/16hr/man/orl	Martindale's 29th
Antieczemic	
Antihepatotic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antioxidant	
Antiparkinsonian 1-5 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Emetic	Martindale's 29th
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Glutathionigenic	Martindale's 29th
Hepatoprotective	
Lipotropic	Merck 11th Edition
Urine-Acidifier 200 mg/3x/day/man/orl	Martindale's 28th
Urine-Deodorant	Martindale's 29th

METHIONINE                      Plant                      --                      2000.0                      0.01                      Jim Duke's personal files.\*

**Activities (15)**

Anticataract	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidote (Acetaminophen) 10 g/16hr/man/orl	Martindale's 29th
Antidote (Paracetamol) 10 g/16hr/man/orl	Martindale's 29th
Antieczemic	
Antihepatotic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antioxidant	
Antiparkinsonian 1-5 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Emetic	Martindale's 29th
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Glutathionigenic	Martindale's 29th
Hepatoprotective	
Lipotropic	Merck 11th Edition
Urine-Acidifier 200 mg/3x/day/man/orl	Martindale's 28th
Urine-Deodorant	Martindale's 29th

METHOXY-MALIC-ACID                      Hull Husk                      --                      --                      \*

METHOXY-MALIC-ACID                      Petiole                      --                      --                      \*

MYRCENE	Seed	--	--	*
<b>Act iv it i es (22)</b>				
ACE-Inhibitor 100 ug/ml				
Aldose-Reductase-Inhibitor 100 ug/ml	Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.			
Allergenic				
Analgesic	Kauderer, B., Zamith, H., Paumgarten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.			
Antibacterial				
Anticonvulsant				
Antimutagenic	Kauderer, B., Zamith, H., Paumgarten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.			
Antinitrosaminic				
Antinociceptive 10-20 mg/kg ipr mus	Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.			
Antinociceptive 20-40 mg/kg scu mus	Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.			
Antioxidant	Jim Duke's personal files.			
Antispasmodic	Jim Duke's personal files.			
Chemopreventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.			
FLavor FEMA 0.5-9	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.			
Hypothermic				
Insectifuge				
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Myorelaxant 100-200 mg/kg				
P450-2B1-Inhibitor IC50=0.14 uM				
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Pesticide				

NIACIN	Seed	6.0	44.0	0.03	Jim Duke's personal files.*
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<b>Act iv it i es (39)</b>					
Allergenic	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
AntiLyme 50 mg/day					
AntiMeniere's	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.				
AntiRaynaud's 1,500-4,000 mg/day					
Antiacrodynamic					
Antiallergic 50 mg/2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antialzheimeran					
Antiamblyopic					
Antianginal					
Anticataract					
Antichilblain	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Anticonvulsant 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antidementia					
Antidermatitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antidiabetic					
Antidysphagic					
Antiepileptic 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antihangover 50 mg					
Antihistaminic 50 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antihyperactivity 1.5-6 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antiinsomnic 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antineuralgic					
Antiparkinsonian 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antipellagic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
Antiscotomic					
Antispasmodic 100 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antivertigo					
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Cardioprotective					
Circulotonic					
Fibrinolytic					
Hepatoprotective					

Hypocholesterolemic 50-100 mg 3x/day	
Hypoglycemic	
Hypolipidemic	
Sedative	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Serotonergic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Vasodilator	Martindale's 29th

NIACIN Plant 17.0 75.0 -0.02 \*

#### Activities (39)

Allergenic	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
AntiLyme 50 mg/day	
AntiMeniere's	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
AntiRaynaud's 1,500-4,000 mg/day	
Antiacrodynic	
Antiallergic 50 mg/2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antialzheimeran	
Antiamblyopic	
Antianginal	
Anticataract	
Antichilblain	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Anticonvulsant 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidementia	
Antidermatitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic	
Antidysphagic	
Antiepileptic 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihangover 50 mg	
Antihistaminic 50 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihyperactivity 1.5-6 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomnic 1 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antineuralgic	
Antiparkinsonian 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipellagic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiscotomic	
Antispasmodic 100 mg 2x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antivertigo	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Cardioprotective	
Circulotonic	
Fibrinolytic	
Hepatoprotective	
Hepatotoxic	
Hypocholesterolemic 50-100 mg 3x/day	
Hypoglycemic	
Hypolipidemic	
Sedative	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Serotonergic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Vasodilator	Martindale's 29th

NICOTIANAMINE Sprout -- -- \*

Seedling

#### Activities (1)

ACE-Inhibitor IC50=0.26 uM/

NONA-TRANS-2-TRANS-4-DIENAL	Seed	--	--	*
NONAN-1-AL	Seed	--	--	*
NONAN-1-OL	Seed	--	--	*
NUATIGENIN	Seed	--	--	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
O'-RHAMNOSYL-8-C-D-	Sprout	--	--	Rizk, A.F.M., The Phytochemistry of the Flora of Qatar, Scientific and Applied

OCT-1-EN-3-OL	Seed	--	--	*	
OCT-TRANS-2-EN-1-OL	Seed	--	--	*	
OCTAN-1-AL	Seed	--	--	*	
OCTAN-1-OL	Seed	--	--	*	
OCTANAL	Seed	--	--	*	
ORGOTHIONENINE	Seed	--	--		Wealth of India.
OXALIC-ACID	Plant	--	400.0	-0.53	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

#### Activities (9)

Acaricide	
Antiseptic	
CNS-Paralytic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Fatal	Martindale's 29th
Hemostatic	Merck 11th Edition
Irritant	
Pesticide	
Renotoxic	Merck 11th Edition
Varroacide	

P-COUMARIC-ACID	Seed	--	--	*	
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#### Activities (25)

Aldose-Reductase-Inhibitor 4 ug/ml (weak activity)	Ichikawa, K., et al. 1991. Isolation and Structure Determination of Aldose Reductase Inhibitors from Traditional Thai Medicine, and Syntheses of Their Derivatives. Sankyo Kenkyusho Nempo, 43: 99-110.
Allelopathic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antibacterial	Pharmazie, 46: 156, 1991.
Anticlastogen	
Antifertility	
Antihepatotoxic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antileukemic IC50=25-56 ug/ml	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. Am J Chin Med, 31(1):37-46.
Antinitrosaminic	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Antioxidant IC24=30 ppm	
Antioxidant 1/3 BHA	
Antiperoxidant IC50=>100 uM	Planta Medica, 57: A54, 1991.
Antiseptic	
Antispasmodic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Antitumor	
Cancer-Preventive	
Chemopreventive	
Choleretic	
Cytotoxic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Diaphoretic?	Lawrence Review of Natural Products, Dec-90.
Fungicide	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Lipoxygenase-Inhibitor IC11=5 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. J. Agric. Food Chem. 38: 688-690.
Pesticide	
Prostaglandigenic	
Prostaglandin-Synthesis-Inhibitor	
Tyrosinase-Inhibitor ID50=3,650 uM	

P-HYDROXY-BENZOIC-ACID	Seed	--	--	*	
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#### Activities (13)

Antibacterial	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant	Phenolic Compounds in Food and Their Effects on Health, 65.
Antiradicular	
Antisickling 10.5 ug/ml	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Fungistat EC50=607 ug/ml	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.

Pesticide					
Phytoalexin	Nigg, H.N. and Seigler, D.S., eds. 1992. <i>Phytochemical Resources for Medicine and Agriculture</i> . Plenum Press, New York. 445 pp.				
Prostaglandinogenic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.				
Secretagogue	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals</i> . The Pharmaceutical Press, London. 296pp.				
Ubiquit	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.				

PANTOTHENIC-ACID Plant 3.5 45.3 0.91 Jim Duke's personal files.\*

#### Activities (11)

Antiallergic 100-500 mg/day	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiarthritic 500-2,000 mg/day	
Anticephalagic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Anticlaudificant?	Martindale's 29th
Antidermatitic	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Antihypercholesterolemic 300 mg/meal	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiileus?	Martindale's 29th
Antiinsomniac?	Martindale's 29th
Antirheumatic?	Martindale's 29th
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli</i> . Dougherty Co, Milwaukee, WI, 1990, 399 pp.

PANTOTHENIC-ACID Seed 4.4 28.3 1.21 Jim Duke's personal files.\*

#### Activities (11)

Antiallergic 100-500 mg/day	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiarthritic 500-2,000 mg/day	
Anticephalagic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Anticlaudificant?	Martindale's 29th
Antidermatitic	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
Antihypercholesterolemic 300 mg/meal	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiileus?	Martindale's 29th
Antiinsomniac?	Martindale's 29th
Antirheumatic?	Martindale's 29th
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli</i> . Dougherty Co, Milwaukee, WI, 1990, 399 pp.

PECTIN Plant -- 800.0 -0.77 Wealth of India.

#### Activities (24)

Antiatheromic 15 g/man/day	Cerda, JJ. <i>Pectin in Health and Disease</i> . HortScience, 25(12): 1485, 1990.
Antibacterial	
Antidiabetic 10 g/man/day/orl	
Antidiarrheic	Merck 11th Edition
Antienteric	
Antigallstone	
Antigastritic	
Antilithic	
Antimetastatic	
Antimutagenic	
Antiobesity	Joseph, J., Nadeau, D. and Underwood, A. 2001. <i>The Color Code</i> . Hyperion, NY.
Antitumor (Colon)	
Antitumor (Prostate)	
Antitussive	
Antiulcer	
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli</i> . Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Chemopreventive	
Demulcent	
Fungicide	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients 2nd Ed</i> . John Wiley & Sons, New York. 649 pp.
Hemostat	
Hypocholesterolemic	
Hypoglycemic	Joseph, J., Nadeau, D. and Underwood, A. 2001. <i>The Color Code</i> . Hyperion, NY.
Peristaltic	

PENTANE-1,3,4-TRICARBOXYLIC-ACID	Hull Husk	--	--		*
PENTOSANS	Hull Husk	320000.0	360000.0	1.0	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
PHAEOPHORBIDE	Sprout Seedling	--	--		*
PHENYLALANINE	Seed	4000.0	10000.0	-0.18	Jim Duke's personal files.*

Activities (7)					
AntiADD 587 mg/day/orl	Martindale's 29th				
Antidepressant 50-4,000 mg/day/man					
Antiparkinsonian 200-500 mg/day/man	Martindale's 28th				
Antisickling 690 ug/ml					
Antivertiginous 100 mg/kg/day/orl/man	Martindale's 29th				
Monoamine-Precursor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).				
Tremorigenic 1,600-12,600 mg/man/day	Martindale's 28th				

PHOSPHORUS	Seed	500.0	10200.0	1.28	Jim Duke's personal files.*
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Activities (4)	
Antiosteoporotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anxiolytic	
Immunostimulant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Osteogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

PHOSPHORUS	Plant	618.0	2810.0	-0.37	*
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Activities (4)	
Antiosteoporotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anxiolytic	
Immunostimulant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Osteogenic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

PHYLLOQUINONE	Seed	--	0.1	-0.05	*
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Activities (5)	
Antihemorrhagic 1 mg ims man	Martindale's 28th
Fungicide	
Hypotensive	
Pesticide	
Toxic	Martindale's 28th

PHYTATE	Seed	8970.0	10000.0	-0.31	*
PHYTIC-ACID	Bran	--	--		*

Activities (9)	
Antiaggregant	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Anticancer	
Antioxidant	
Antitumor	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Fungicide	
Hypocalcemic Sodium phytate	Merck 11th Edition
Hypocholesterolemic	
Hypolipidemic	

PHYTIC-ACID	Hull Husk	5600.0	8700.0		*
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Activities (9)	
Antiaggregant	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Anticancer	
Antioxidant	
Antitumor	

Fungicide  
 Hypocalcemic Sodium phytate Merck 11th Edition  
 Hypocholesterolemic  
 Hypolipidemic

PHYTOSTEROLS Seed -- 580.0 -0.49 Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

**Activities (2)**

Antiprostatotic  
 Hypocholesterolemic

POTASSIUM Seed 2200.0 8900.0 -0.32 Jim Duke's personal files.\*

**Activities (14)**

Angiotensin-Receptor-Blocker  
 Antiarrhythmic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antidepressant Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antifatigue Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antihypertensive  
 Antispasmodic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antistroke  
 Anxiolytic  
 Beta-Blocker  
 Cardioprotective 3,000-5,000 mg  
 Cardiotoxic 18,000 mg/man/day  
 Diuretic  
 Hypotensive  
 Vasodilator

POTASSIUM Plant 598.0 2720.0 -1.33 \*

**Activities (14)**

Angiotensin-Receptor-Blocker  
 Antiarrhythmic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antidepressant Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antifatigue Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antihypertensive  
 Antispasmodic Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.  
 Antistroke  
 Anxiolytic  
 Beta-Blocker  
 Cardioprotective 3,000-5,000 mg  
 Cardiotoxic 18,000 mg/man/day  
 Diuretic  
 Hypotensive  
 Vasodilator

PROLINE Shoot -- 1.3 -0.71 \*

PROLINE Root -- 2.4 -1.3 \*

PROPANAL Seed -- -- \*

PROTEIN Seed 74000.0 232000.0 -0.02 Jim Duke's personal files.\*

PROTEIN Plant 15840.0 72000.0 -0.83 \*

PUTRESCINE Leaf -- 1186.0 \*

PYRIDOXINE Seed 0.22 2.4 -0.82 Jim Duke's personal files.\*

**Activities (43)**

Analgesic 50 mg day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 AntiMSG-Sensitivity 50 mg/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.  
 AntiMorning-Sickness Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  
 AntiPMS 100 mg/day/orl/wmn Martindale's 29th  
 AntiPMS 50 mg/day Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).  
 AntiTMJ 50 mg/day Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antiaggregant 40 mg/day	
Antianemic 50-400 mg/man/day	
Antiasthmatic 100-200 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiatherosclerotic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiautistic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticarpal-Tunnel 100-150 mg/day/12 wks/orl/man	Martindale's 29th
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidepressant 40-50 mg day	
Antidermatitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Hydrazine) 10 g ivn	Martindale's 29th
Antidyskinetic 250-300 mg/man/4x/day	Martindale's 28th
Antiemetic 20-200 mg/man/day	Martindale's 28th
Antiepileptic 40 mg/day	
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antihomocystinuric 40 mg/day	
Antihyperkinetic 1.5-2 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihyperventilation 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinfertility 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antilithic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antinephritic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antineuritic 150 mg/man/day	Martindale's 28th
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antioxaluric	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiparkinsonian 50 mg day	
Antiprolactin	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradiation	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antischizophrenic 50 mg/man/3x/day	Martindale's 28th
Antiseborrheic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antisickling	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antispasmodic 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiulcer	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antivertigo	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Dopaminergic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Neurotoxic 2-6 g/day for 2-24 mos	Martindale's 29th
Progesteronigenic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

PYRIDOXINE Plant 1.76 3.08 Jim Duke's personal files.\*

#### Activities (43)

Analgesic 50 mg day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
AntiMSG-Sensitivity 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
AntiMorning-Sickness	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiPMS 100 mg/day/orl/wmn	Martindale's 29th
AntiPMS 50 mg/day	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiTMJ 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiacne 50 mg/day	
Antiaggregant 40 mg/day	
Antianemic 50-400 mg/man/day	
Antiasthmatic 100-200 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiatherosclerotic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiautistic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticarpal-Tunnel 100-150 mg/day/12 wks/orl/man	Martindale's 29th
Anticheilitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidepressant 40-50 mg day	
Antidermatitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidiabetic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidote (Hydrazine) 10 g ivn	Martindale's 29th
Antidyskinetic 250-300 mg/man/4x/day	Martindale's 28th
Antiemetic 20-200 mg/man/day	Martindale's 28th
Antiepileptic 40 mg/day	
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

Antihyperkinetic 1.5-2 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antihyperventilation 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinfertility 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antilithic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antinephritic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antineuritic 150 mg/man/day	Martindale's 28th
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antioxaluric	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiparkinsonian 50 mg day	
Antiprolactin	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradiation	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antischizophrenic 50 mg/man/3x/day	Martindale's 28th
Antiseborrheic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antisickling	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antispasmodic 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiulcer	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antivertigo	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Dopaminergic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Neurotoxic 2-6 g/day for 2-24 mos	Martindale's 29th
Progesteronigenic 40 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

QUERCETIN Hay -- 310.0 \*

#### Activities (176)

11B-HSD-Inhibitor	
5-Lipoxygenase-Inhibitor IC50 (uM)=4	
ATPase-Inhibitor	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Aldehyde-Oxidase-Inhibitor IC70-96=10 uM	
Aldose-Reductase-Inhibitor 100 uM	
Aldose-Reductase-Inhibitor 4 ug/ml	Ichikawa, K., et al. 1991. Isolation and Structure Determination of Aldose Reductase Inhibitors from Traditional Thai Medicine, and Syntheses of Their Derivatives. Sankyo Kenkyusho Nempo, 43: 99-110.
Aldose-Reductase-Inhibitor IC50=0.84 ug/ml cow	Okada, Y, et al. 1995. Search for Naturally Occurring Substances to Prevent the Complications of Diabetes. II. Inhibitory Effect of Coumarin and Flavonoid Derivatives on Bovine Lens Aldose Reductase and Rabbit Platelet Aggregation. Chem Pharm Bull 43(8): 1385-1387
Aldose-Reductase-Inhibitor IC50=0.344 uM	Mao, X. M., Zhang, J. Q. 1993. Inhibition of Aldose Reductase by Extracts of Chinese Herbal Medicine. Zhongguo Zhongyao Zazhi, 18(10): 623-624.
Allelochemic IC82=1 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Allergenic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Analgesic	
AntiCrohn's 400 mg/man/3x/day	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
AntiGTF ID50=120 ug/ml	
AntiHIV	
AntiPMS 500 mg/2x/day/wmn	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiaflatoxin IC50=25 uM	
Antiaflatoxin IC50=7.5 ppm	
Antiaggregant IC50=55 uM	Economic & Medicinal Plant Research, 5: 333.
Antiaggregant 30 uM	
Antiaging	
Antiallergic IC50=14 uM	Jim Duke's personal files.
Antialzheimeran	
Antianaphylactic	Meli, R., Autore, G., Di Carlo, G., Capasso, F. Inhibitory Action of Quercetin on Intestinal Transit in Mice. Phytotherapy Research 4(5): 201, 1990.
Antiangiogenic	
Antiarthritic	
Antiasthmatic IC50=14 uM	
Antiatherosclerotic	
Antibacterial	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Anticarcinomic (Breast) IC50=1.5 uM	Medline (post 1990 searches filed in my computer)
Anticariogenic ID50=120 ug/ml	
Anticataract	
Anticolitic 400 mg/man/3x/day	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Anticystitic 1,000 mg/day/4 weeks	
Antidepressant	
Antidermatitic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antidiabetic	
Antielastase IC50=0.8 ug/ml	
Antiencephalitic	Economic & Medicinal Plant Research, 5: 199.
Antiescherichic	
Antiestrogenic	
Antifeedant IC52=<1,000 ppm diet	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Antifibrosarcomic	
Antiflu	Vlietinck, A.J. and Dommissie, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.
Antigastric	Rastitel'nye Resursy, 21: 85.
Antigonadotropic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihepatotoxic	Joyeux, M., Rolland, A., Fleurentin, J., Mortier, F., and Dorfman, P. 1989. Tert-Butyl Hydroperoxide-Induced Injury in Isolated Rat Hepatocytes: A Model for Studying Anti-Hepatotoxic Crude Drugs. <i>Planta Medica</i> 56(2): 171-173, 1990.
Antiherpetic 48-150 ug/ml	
Antihistaminic IC50=<10 uM	
Antihydrophobic	Vlietinck, A.J. and Dommissie, R.A. eds. 1985. Advances in Medicinal Plant Research. Wiss. Verlag. Stuttgart.
Antihypertensive	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
Antiinflammatory 20-150 mg/kg	Fitoterapia No.5-1990.
Antileishmanic IC50=64	
Antileukemic IC50=10 uM	Economic & Medicinal Plant Research, 5: 225.
Antileukemic IC50=>10 ug/ml	Life Sciences 55: 1061.
Antileukemic 5.5-60 uM	
Antileukotriene	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antilipoperoxidant IC67=50	
Antimalarial IC50=1-6.4 ug/ml	Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.
Antimelanomic	
Antimetastatic	
Antimutagenic ID50=2-5 nM	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
Antimutagenic ID50=0.62 ug/ml	
Antimyocarditic	Economic & Medicinal Plant Research, 5: 199.
Antinitrosaminic	
Antinociceptive	
Antioxidant IC96=300 ppm	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507.ACS, Washington 402 pp.
Antioxidant ED50=2.3 uM	Seidel, V., Verholle, M., Malard, Y., Tillequin, F., Fruchart, J-C., Duriez, P., Bailleul, F., Teissier, E. 2000. Phenylpropanoids from <i>Ballota nigra</i> L. Inhibit in vitro LDL Peroxidation. <i>Phytotherapy Research</i> , 14(2): 93-98.
Antioxidant 4.7 x Vit. E	
Antioxidant IC47=10 uM	
Antipancreatic	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Antiperiodontal	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiperistaltic	
Antipermeability	
Antiperoxidant	<i>Planta Medica</i> , 57: A110, 1991.
Antipharyngitic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiplaque	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiplasmodial IC50=13-64	
Antipodriac	
Antipolio	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiproliferant 10 nM	
Antiprostanoic	
Antiprostatic	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Antipsoriac	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiradicular IC50=4.6 uM	<i>Planta Medica</i> , 56(6): 695, 1990.
Antispasmodic	
Antistreptococcic ID50=120 ug/ml	
Antithiamin	Phenolic Compounds in Food and Their Effects on Health, 69.
Antithrombic	
Antitrypanosomic IC50=13	

Antitumor (Bladder)	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Lung)	
Antitumor (Ovary)	
Antitumor (Skin) 20 uM	
Antitumor-Promoter	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiulcer	
Antiviral IC50=10 uM	Economic & Medicinal Plant Research, 5: 225.
Antiviral 48-150 ug/ml	Amoros, M., Simoes, C.M.O., Girre, L., et al. Synergistic Effect Of Flavones And Flavonols Against Herpes Simplex Virus Type 1 In Cell Culture. Comparison With The Antiviral Activity Of Propolis. J. of Natural Products 55(12):1732-1740, 1992.
Apoptotic 20-60 uM	
Bacteristat 10 mg/ml	
Bradycardiac	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
COMT-Inhibitor	
COX-2-Inhibitor <40 uM	
Calmodulin-Antagonist	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide	
Capillari-protective	Merck 11th Edition
Carcinogenic 40,000 ppm (diet) mus	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Catabolic	
Copper-Chelator	
Cyclooxygenase-Inhibitor	
Cytochrome-P450-1A2-Inhibitor	
Cytotoxic ED50=70 ug/ml	Matsukawa, Y., et al. The Effect of Quercetin and Other Flavonoids on Cell Cycle Progression and Growth of Human Gastric Cancer Cells. Planta Medica, 56(6): 677, 1990.
Cytotoxic IC82=100 ug/ml	Planta Medica, 57: A113, 1991.
Deiodinase-Inhibitor	Jim Duke's personal files.
Diaphoretic?	Lawrence Review of Natural Products, Dec-90.
Differentiator 5.5 uM	
Estrogenic 10% genistein	
Fungicide	
Glucosyl-Transferase-Inhibitor ID50=120 ug/ml	
HIV-RT-Inhibitor IC50=<1 ug/ml	Nakane, H., Fukushima, M., and Ono*, K. Differential Inhibition Of Reverse Transcriptase And Various DNA Polymerases By Digallic Acid And Its Derivatives. Journal of Natural Products, 53(5): 1234-1240, 1990.
Hemostat	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
Hepatomagenic 5,000 ppm (diet) rat	Phenolic Compounds in Food and Their Effects on Health. Antioxidants & Cancer Prevention. Huang, M.T., Ho, C.T. and Lee, C.Y. eds. 1992. ACS Symposium Series 507 ACS, Washington 402 pp.
Hepatoprotective	
Hypoglycemic 100 mg/kg orl rat	Ivorra, M.D., Paya, M., and Villar, A. 1989. A Review of Natural Products and Plants as Potential Antidiabetic Drugs. Journal of Ethnopharmacology, 27: 243-275, 1989.
Inotropic	
Insulinogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Juvabional	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Larvistat 8,000 ppm diet	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Lipoxygenase-Inhibitor IC11=1.25 mM	Oszmianski, J. and Lee, C.Y. 1990. Inhibitory Effect of Phenolics on Carotene Bleaching in Vegetables. J. Agric. Food Chem. 38: 688-690.
Lipoxygenase-Inhibitor IC50=0.1-5 uM	
MAO-A-Inhibitor	
MMP-9-Inhibitor 20 uM	
Mast-Cell-Stabilizer	
Metal-Chelator (Copper)	Seidel, V., Verholle, M., Malard, Y., Tillequin, F., Fruchart, J-C., Duriez, P., Bailleul, F., Teissier, E. 2000. Phenylpropanoids from Ballota nigra L. Inhibit in vitro LDL Peroxidation. Phytotherapy Research, 14(2): 93-98.
Metalloproteinase-Inhibitor IC50=>42 uM	
Mutagenic	
NADH-Oxidase-Inhibitor	
NEP-Inhibitor IC50=>42 uM	
NF-kB-Inhibitor	
NO-Inhibitor IC>50=125 uM	
NO-Inhibitor IC50=20 uM	
NO-Synthase-Inhibitor 5-50 uM	
Neuroprotective 5-25 uM	
Ornithine-Decarboxylase-Inhibitor	

P450-Inducer 5 uM	Father Nature's Pharmacy: The aggregate of all these three-letter citations.
P450-Inhibitor 50-100 uM	Father Nature's Pharmacy: The aggregate of all these three-letter citations.
PGE2-Inhibitor	
PTK-Inhibitor 0.4-24 uM	
Pesticide	
Phospholipase-Inhibitor	
Plasmodicide	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Proliferant	
Prostaglandin-Synthesis-Inhibitor 40 ug/ml	Ibewuike, J. C., Ogungbamila, F. O., Ogundaini, A. O., Okeke, I. N., Bohlin, L. 1997. Antiinflammatory and Antibacterial Activities of C-methylflavonol from <i>Piliostigma thonningii</i> . <i>Phytotherapy Research</i> , 11(4): 281-284.
Protein-Kinase-C-Inhibitor	Naim, M., Zehavi, U., Nagy, S., and Rouseff, R.L. Hydroxycinnamic Acids as Off-Flavor Precursors in Citrus Fruits and Their Products. <i>Phenolic Compounds in Food and Their Effects on Health</i> , Ch.14.
Quinone-Reductase-Inducer 6 uM	Uda, Y., Price, K. R., Williamson, G., Rhodes, M. J. C. 1997. Induction of the Anticarcinogenic Marker Enzyme, Quinone Reductase, in Murine Hepatoma Cells In Vitro by Flavonoids. <i>Cancer Lett.</i> , 120 (2): 213-216.
Quinone-Reductase-Inducer 13 uM	
TNF-alpha-Inhibitor IC50=3.11 uM	
Teratologic	
Topoisomerase-I-Inhibitor IC50=12.8 ug/ml	
Topoisomerase-I-Inhibitor IC50=42 uM	
Topoisomerase-II-Inhibitor IC50=1-6.9 ug/ml	
Topoisomerase-II-Inhibitor IC50=23-40 uM	
Tumorigenic 0.1% diet orl rat/yr	Jim Duke's personal files.
Tyrosinase-Inhibitor ID50=70 uM	
Tyrosine-Kinase-Inhibitor	Economic & Medicinal Plant Research, 6: 170.
VEGF-Inhibitor	
Vasodilator	
Xanthine-Oxidase-Inhibitor IC50=>0.4 ug/ml	Chem. & Pharm. Bull. 38: 1772.
Xanthine-Oxidase-Inhibitor IC50=10.6 ug/ml	
Xanthine-Oxidase-Inhibitor 3.1 uM	
cAMP-Phosphodiesterase-Inhibitor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
iNOS-Inhibitor IC50=20 uM	

RIBOFLAVIN                      Seed                      0.66                      11.7                      3.13                      Jim Duke's personal files.\*

#### Activities (15)

AntiLyme 50 mg/day	
Antiarabiflavivotic 2-10 mg/day orl	Martindale's 28th
Anticarpal-Tunnel 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 15 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticephalagic	
Anticervicaldysplasic 1.6-10 mg/day	
Anticheilitic	
Antidecubitic	
Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antikeratitic	
Antimigraine	
Antioxidant	
Antipellagic	
Antiphotophobic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

RIBOFLAVIN                      Plant                      0.4                      2.0                      -0.66                      \*

#### Activities (15)

AntiLyme 50 mg/day	
Antiarabiflavivotic 2-10 mg/day orl	Martindale's 28th
Anticarpal-Tunnel 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 15 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticephalagic	
Anticervicaldysplasic 1.6-10 mg/day	
Anticheilitic	

Antiglossitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antikeratitic	
Antimigraine	
Antioxidant	
Antipellagic	
Antiphotophobic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

SALICYLATES Seed -- -- -0.34 \*

#### Activities (7)

Antiaggregant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Antiinflammatory	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Antipyretic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Antiuricosuric	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Hyperglycemic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Hypoglycemic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Uricosuric	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

SALICYLIC-ACID-METHYL-ESTER Seed -- -- \*

SAPONINS Seed 1000.0 13000.0 -0.32 Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

#### Activities (5)

Antihepatomic  
Antimutagenic  
Antitumor (Lung)  
Antitumor (Ovary)  
Immunomodulator

SCOPOLETIN Root -- 10.0 -1.0 \*

#### Activities (44)

Aldose-Reductase-Inhibitor IC50=6.2 ug/ml cow	Okada, Y. et al. 1995. Search for Naturally Occurring Substances to Prevent the Complications of Diabetes. II. Inhibitory Effect of Coumarin and Flavonoid Derivatives on Bovine Lens Aldose Reductase and Rabbit Platelet Aggregation. Chem Pharm Bull 43(8):1385-1387
Allelochemic IC89=2 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Analgesic	
Anesthetic	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Antiadrenergic	Neuwinger, H. D. 1996. African Ethnobotany - Poisons and Drugs. Chapman & Hall, New York. 941 pp.
Antiaflatoxin IC50=65 uM	
Antiaflatoxin 11.4 ppm	
Antiarrhythmic	
Antiasthmatic	
Antibacterial	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antibronchoconstrictor	
Anticholinergic	
Antiedemic	
Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Antihepatotoxic	Bisset, N.G., ed. 1994. Herbal Drugs and Phytopharmaceuticals. CRC Press. Boca Raton, FL. 566 pp.
Antiinflammatory ED 1-10 ug/ear	
Antileukotrirogenic	
Antimutagenic	Mills, Simon and Bone, Kerry. 2000. Phytotherapy. Churchill Livingstone, Edinburgh.
Antioxidant	
Antiproliferant	
Antiprostaglandin	
Antiseptic	
Antispasmodic	
Antitumor 2.9 ug/ml	
Apoptotic	
Bronchorelaxant	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
CNS-Depressant	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
CNS-Stimulant	Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburgh & London. 1457 pp.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.



Uterosedative Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.

SCOPOLIN	Sprout Seedling	--	--	*
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### Activities (3)

Anticholinergic	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
Bronchorelaxant	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.
CNS-Depressant	Huang, K. C. 1993. The Pharmacology of Chinese Herbs. CRC Press, Boca Raton, FL 388 pp.

SECALOSE	Plant	--	--	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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SELENIUM	Bran	--	--	*
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### Activities (60)

AP-1-Inhibitor 2-50 uM	
Analgesic 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anorexic	Cooper-Driver, G. A., Chemical substances in plants toxic to animals, pp. 213-47 in Rechcigl, M., Jr., ed. CRC Handbook of Naturally Occurring Food Toxicants, CRC Press, Boca Raton, 1983, 339 pp.
AntiHIV	
AntiINF-kB	
Antiacne 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiaggregant	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiangiogenic 2 uM	
Antiangiogenic 230 ug/kg orl rat	
Antiarthritic	
Antiasthmatic	
Antiatherosclerotic	
Anticataract 400 ug/day	
Anticirrhotic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticlimacteric 200 ug/day	
Anticoronary 200 ug/day	
Antidandruff	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidepressant 200 ug/day	
Antidote (Mercury)	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antifibrotic 400 ug	
Antigout 200 ug	
Antikeshan	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antileukemic 1.6 mg/kg ipr mus	
Antileukotriene	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimaculitic	
Antimelanomic 480 ug/kg	
Antimenopausal 200 ug/day	
Antimetastatic 480 ug/kg	
Antimyalgic 200 ug/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiosteoarthritis	
Antioxidant 100-200 (-400) ug/man/day	
Antiparkinsonian 200-400 ug/day	
Antiproliferant 2 uM	
Antiradicular 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antirheumatic	
Antisyndrome-X 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor (Breast) 333.6 ug/day	
Antitumor (Breast) 0.8 mg/kg scu mus	
Antitumor (Breast) 150 ug/kg diet rat	
Antitumor (Breast) 230 ug/kg orl rat	
Antitumor (Lung) 240 ug/kg diet	
Antitumor (Prostate)	
Antitumor (brain) 38-150	

Antitumor	Rafatullah, S., Tariq, M., Al-Yahya, M.A., Mossa, J.S., and Ageel, A.M. 1989. Evaluation of Turmeric ( <i>Curcuma longa</i> ) for Gastric and Duodenal Antiulcer Activity in Rats. <i>J. of Ethnopharmacology</i> , 29: 25-34, 1990.
Anxiolytic	
Apoptotic	
Cancer-Preventive	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Cardioprotective 200 ug/day	
Depressant	Cooper-Driver, G. A., <i>Chemical substances in plants toxic to animals</i> , pp. 213-47 in Rechcigl, M., Jr., ed. <i>CRC Handbook of Naturally Occurring Food Toxicants</i> , CRC Press, Boca Raton, 1983, 339 pp.
Fungicide	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Immunomodulator	
Immunostimulant 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
NF-kB-Inhibitor	
Ornithine-Decarboxylase-Inhibitor	
Pesticide	
Polyamine-Synthesis-Inhibitor	
Prostaglandin-Sparer	Fujita, T., Nakatani, E., Funaishi, N., Sakuma, S., Fujimoto, Y. Potent inhibition of prostaglandin inactivation in rabbit gastric antral mucosal slices by selenium ions in-vitro. <i>J. Pharm. Pharmacol.</i> 42: 655-657, 1990.
Protein-Kinase-C-Inhibitor IC50=2-50 uM	
VEGF-Inhibitor	

SELENIUM Plant 0.3 1.3 -0.37 \*

#### Activities (60)

AP-1-Inhibitor 2-50 uM	
Analgesic 200 ug/day	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Anorexic	Cooper-Driver, G. A., <i>Chemical substances in plants toxic to animals</i> , pp. 213-47 in Rechcigl, M., Jr., ed. <i>CRC Handbook of Naturally Occurring Food Toxicants</i> , CRC Press, Boca Raton, 1983, 339 pp.
AntiHIV	
AntiNF-kB	
Antiacne 200 ug/day	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiaggregant	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiangiogenic 2 uM	
Antiangiogenic 230 ug/kg or rat	
Antiarthritic	
Antiasthmatic	
Antiatherosclerotic	
Anticataract 400 ug/day	
Anticirrhotic	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Anticlimacteric 200 ug/day	
Anticoronary 200 ug/day	
Antidandruff	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Antidepressant 200 ug/day	
Antidote (Mercury)	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Antifibrotic 400 ug	
Antigout 200 ug	
Antikeshan	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Antileukemic 1.6 mg/kg ipr mus	
Antileukotriene	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine</i> . John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimaculitic	
Antimelanomic 480 ug/kg	
Antimenopausal 200 ug/day	
Antimetastatic 480 ug/kg	
Antimyalgic 200 ug/day	Werbach, M. 1993. <i>Healing with Food</i> . Harper Collins, New York, 443 pp.
Antiosteoarthritis	
Antioxidant 100-200 (-400) ug/man/day	
Antiparkinsonian 200-400 ug/day	
Antiproliferant 2 uM	
Antiradicular 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antirheumatic	
Antisyndrome-X 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitumor (Breast) 333.6 ug/day	
Antitumor (Breast) 0.8 mg/ka	

Antitumor (Breast) 150 ug/kg diet rat	
Antitumor (Breast) 230 ug/kg orl rat	
Antitumor (Lung) 240 ug/kg diet	
Antitumor (Prostate)	
Antitumor (brain) 38-150 ug/kg	
Antiulcerogenic	Rafatullah, S., Tariq, M., Al-Yahya, M.A., Mossa, J.S., and Ageel, A.M. 1989. Evaluation of Turmeric (Curcuma longa) for Gastric and Duodenal Antiulcer Activity in Rats. <i>J. of Ethnopharmacology</i> , 29: 25-34, 1990.
Anxiolytic	
Apoptotic	
Cancer-Preventive	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Cardioprotective 200 ug/day	
Depressant	Cooper-Driver, G. A., Chemical substances in plants toxic to animals, pp. 213-47 in Rechcigl, M., Jr., ed. <i>CRC Handbook of Naturally Occurring Food Toxicants</i> , CRC Press, Boca Raton, 1983, 339 pp.
Fungicide	Davies, S., and Stewart, A. 1990. <i>Nutritional Medicine</i> . Avon Books, New York. 509pp.
Immunomodulator	
Immunostimulant 100-200 (-400) ug/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reverse insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
NF-kB-Inhibitor	
Ornithine-Decarboxylase-Inhibitor	
Pesticide	
Polyamine-Synthesis-Inhibitor	
Prostaglandin-Sparer	Fujita, T., Nakatani, E., Funaishi, N., Sakuma, S., Fujimoto, Y. Potent inhibition of prostaglandin inactivation in rabbit gastric antral mucosal slices by selenium ions in-vitro. <i>J. Pharm. Pharmacol.</i> 42: 655-657, 1990.
Protein-Kinase-C-Inhibitor IC50=2-50 uM	
VEGF-Inhibitor	

SERINE Seed -- 4000.0 -1.26 Jim Duke's personal files.\*

#### Activities (1)

Cancer-Preventive Stitt, P. A. *Why George Should Eat Broccoli*. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

SILICA Plant -- 36000.0 -0.62 Wealth of India.

SILICIC-ACID Leaf -- -- Wealth of India.

#### Activities (1)

Antidiabetic? Wichtl, M. 1984. *Teedrogen*. Ein Handbuch für Apotheker und Ärzte. Wissenschaftliche Verlagsgesellschaft. mbH Stuttgart. 393 pp.

SILICON Plant 4.0 18.3 -0.44 \*

#### Activities (4)

Antiarteriosclerotic Davies, S., and Stewart, A. 1990. *Nutritional Medicine*. Avon Books, New York. 509pp.

Antionychyotic

Antiosteoporotic

Cardioprotective

SILICON-OXIDE Plant -- -- \*

SILICON-OXIDE Ash -- -- \*

SINAPIC-ACID Seed -- -- \*

#### Activities (9)

Antibacterial Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

Antihepatotoxic Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

Antioxidant IC27=30 ppm

Antiperoxyinitrite IC39=5 uM

Antiperoxyinitrite IC60=20 uM

Antiperoxyinitrite IC75=100 uM

Cancer-Preventive Stitt, P. A. *Why George Should Eat Broccoli*. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

Fungicide Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

Pesticide

SODIUM Seed 100.0 1600.0 1.82 Jim Duke's personal files.\*

Hypertensive	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				
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SODIUM	Plant	862.0	3920.0	-0.09	*
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<b>Activities (1)</b>					
Hypertensive	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.				

SPERMIDINE	Leaf	--	14.0		*
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<b>Activities (1)</b>					
Antioxidant					

SPERMINE	Leaf	--	13.0		*
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<b>Activities (1)</b>					
Antioxidant					

STARCH	Seed	500000.0	600000.0	1.17	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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<b>Activities (5)</b>					
Absorbent	Martindale's 29th				
Antidote (Iodine)	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antinesidioblastotic	Martindale's 29th				
Emollient	Martindale's 29th				
Poultice	Martindale's 29th				

STIGMAST-7-EN-3-BETA-OL	Seed	--	--		*
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STIGMAST-7-EN-3-BETA-OL	Leaf	--	--		*
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STIGMASTA-7,24(28)-DIEN-3-BETA-OL	Seed	--	--		*
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STIGMASTADIENOL	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
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STIGMASTANEDIOL	Seed	--	--		*
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STIGMASTANOL	Leaf	--	--		*
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STIGMASTANOL	Seed	--	--		*
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STIGMASTEROL	Seed	--	--		*
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<b>Activities (12)</b>					
Antihepatotoxic					
Antiinflammatory	Lawrence Review of Natural Products, 1995				
Antinociceptive					
Antiphidic 2.3 mg ipr mus	Economic & Medicinal Plant Research, 5: 363.				
Antioxidant IC33=10 uM					
Antiviral	Abid Ali Khan, M.M., Jain, D.C., Bhakuni, R.S., Zaim, M., and Thakur, R.S. 1991. Occurrence of some antiviral sterols in Artemisia annua. Plant Science, 75: 161-165, 1991.				
Artemicide LC50=110 ppm	Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of Melodorum fruticosum. Phytochemistry. 29(5): 1667-1670. 1990.				
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.				
Estrogenic					
Hypocholesterolemic	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.				
Ovulant					
Sedative					

STIGMASTEROL	Leaf	--	--		*
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<b>Activities (12)</b>					
Antihepatotoxic					
Antiinflammatory	Lawrence Review of Natural Products, 1995				
Antinociceptive					
Antiphidic 2.3 mg ipr mus	Economic & Medicinal Plant Research, 5: 363.				
Antioxidant IC33=10 uM					

75: 101-105, 1991.

Artemicide  
 LC50=110 ppm Jung, J.H., Pummangura, S., Chaichantipyuth, c., Patarapanich, C., and McLaughlin, J.L. 1989. Bioactive Constituents of *Melodorum fruticosum*. *Phytochemistry*. 29(5): 1667-1670. 1990.

Cancer-Preventive  
 Estrogenic Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

Hypocholesterolemic  
 Ovulant  
 Sedative Nigg, H.N. and Seigler, D.S., eds. 1992. *Phytochemical Resources for Medicine and Agriculture*. Plenum Press, New York. 445 pp.

SUCROSE Plant -- -- List, P.H. and Horhammer, L., *Hager's Handbuch der Pharmazeutischen Praxis*, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

**Activities (14)**

Aggregant Pizzorno, J.E. and Murray, M.T. 1985. *A Textbook of Natural Medicine*. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Antihiccup 1 tsp Martindale's 29th

Antiophthalmic Martindale's 29th

Antioxidant Merck 11th Edition

Atherogenic Pizzorno, J.E. and Murray, M.T. 1985. *A Textbook of Natural Medicine*. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Collyrium Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

Demulcent Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants*. Taylor & Frost, London. 791 pp.

Flatugenic Singh, J., Gupta, K., and Arora, S.K. 1993. Changes in the anti-nutritional factors of developing seeds and pod walls of fenugreek (*Trigonella foenum graecum* L.). *Plant Foods for Human Nutrition*. 46: 77-84, 1994.

Hypercholesterolemic  
 Preservative Pizzorno, J.E. and Murray, M.T. 1985. *A Textbook of Natural Medicine*. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Sweetener 1 x sucrose Merck 11th Edition

Triglycerigenic Pizzorno, J.E. and Murray, M.T. 1985. *A Textbook of Natural Medicine*. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Uricogenic Pizzorno, J.E. and Murray, M.T. 1985. *A Textbook of Natural Medicine*. John Bastyr College Publications, Seattle, Washington (Looseleaf).

Vulnerary Martindale's 29th

SUGARS Seed 20000.0 50000.0 -0.14 List, P.H. and Horhammer, L., *Hager's Handbuch der Pharmazeutischen Praxis*, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

SUGARS Plant 30000.0 93000.0 -0.22 ANON. 1948-1976. *The Wealth of India raw materials*. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

SULFUR Seed 1500.0 3100.0 0.32 Jim Duke's personal files.\*

**Activities (14)**

Acarifuge

Antiacne Martindale's 29th

Antiarthritic Werbach, M. 1993. *Healing with Food*. Harper Collins, New York, 443 pp.

Antidandruff Martindale's 29th

Antigrey Martindale's 29th

Antiosteoarthritis Werbach, M. 1993. *Healing with Food*. Harper Collins, New York, 443 pp.

Antiseborrheic Martindale's 29th

Antiseptic Martindale's 29th

Comedogenic Martindale's 29th

Keratolytic Martindale's 29th

Laxative Martindale's 29th

Parasiticide Martindale's 29th

Pesticide

Scabicide Martindale's 29th

SULFUR Plant 800.0 4100.0 0.1 Jim Duke's personal files.\*

**Activities (14)**

Acarifuge

Antiacne Martindale's 29th

Antiarthritic Werbach, M. 1993. *Healing with Food*. Harper Collins, New York, 443 pp.

Antidandruff Martindale's 29th

Antigrey Martindale's 29th

Antiosteoarthritis Werbach, M. 1993. *Healing with Food*. Harper Collins, New York, 443 pp.

Antiseborrheic Martindale's 29th

Antiseptic Martindale's 29th

Comedogenic Martindale's 29th

Keratolytic Martindale's 29th

Laxative Martindale's 29th

Parasiticide Martindale's 29th

Scabicide	Martindale's 29th				
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TARTARIC-ACID	Petiole	--	--		*
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Activities (6)	
Acidifier	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Additive	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Antioxidant Synergist	Martindale's 29th
FLavor FEMA 500-10,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Sequestrant	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

TARTARIC-ACID	Hull Husk	--	--		*
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Activities (6)	
Acidifier	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Additive	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Antioxidant Synergist	Martindale's 29th
FLavor FEMA 500-10,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Sequestrant	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

THIAMIN	Seed	2.6	12.1	1.32	*
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Activities (31)	
Analgesic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
AntiLyme 50 mg	
Antialcoholic 50-100 mg/day	
Antialzheimeran 100-3,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antianorectic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antibackache 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiberiberi	
Anticanker	
Anticardiospasmic	
Anticataract	
Anticolitic	
Antidecubitic	
Antideliriant	
Antidementia	
Antidyspeptic	
Antiencephalopathic	Martindale's 29th
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antigastritic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antihangover 50 mg	
Antiheartburn	
Antiherpetic	
Antimigraine	
Antimyocarditic	
Antineuralgic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antineurasthenic	
Antineuritic	
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipoliomyelitic	
Insectifuge 75-150 mg/man/day	Martindale's 28th
Neuroprotective	
Pesticide	

THIAMIN	Plant	0.9	4.0	-0.31	Jim Duke's personal files.*
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Activities (31)	
Analgesic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.

Antialcoholic 50-100 mg/day					
Antialzheimeran 100-3,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antianorectic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antibackache 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antiberiberi					
Anticanker					
Anticardiospasmic					
Anticataract					
Anticolitic					
Antidecubitic					
Antideliriant					
Antidementia					
Antidyspeptic					
Antiencephalopathic	Martindale's 29th				
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antigastric	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
Antihangover 50 mg					
Antiheartburn					
Antiherpetic					
Antimigraine					
Antimyocarditic					
Antineuralgic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antineurasthenic					
Antineuritic					
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.				
Antipoliomyelitic					
Insectifuge 75-150 mg/man/day	Martindale's 28th				
Neuroprotective					
Pesticide					

THIAMINE	Plant	0.4	2.0	-0.46	*
THREONINE	Seed	3000.0	7000.0	-0.25	Jim Duke's personal files.*

#### Activities (4)

Antioxidant?					
Antiulcer	Martindale's 29th				
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
FLavor FEMA 1,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				

THREONINE	Plant	--	16000.0	1.17	Jim Duke's personal files.*
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#### Activities (4)

Antioxidant?					
Antiulcer	Martindale's 29th				
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.				
FLavor FEMA 1,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry				

TIN	Plant	1.3	6.0	-1.01	*
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#### Activities (4)

Antiacne					
Antibacterial					
Pesticide					
Taenicide				Martindale's 28th	

TRANS-BETA-OCIMENE	Seed	--	--		*
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TRANS-HEPT-2-ENAL	Seed	--	--		*
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TRANS-NON-2-EN-1-AL	Seed	--	--		*
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TRANS-NON-2-ENAL	Seed	--	--		*
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TRICIN	Leaf	--	--		*
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Allelopathic	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Anticariogenic	Wealth of India.
Antileukemic 6-12 mg/kg	
Antioxidant	
Antitumor	
Catabolic	
Estrogenic	
Herbistat	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Pesticide	

TRICIN-4',7-DI-O-BETA-D-GLYCOSIDE	Inflorescence	--	--	*
TRICIN-4'-O-ALPHA-L-ARABINOSIDE	Leaf	--	--	*
TRICIN-4'-O-ALPHA-L-ARABINOSIDE	Inflorescence	--	--	*
TRICIN-4'-O-BETA-D-GLUCOSIDE	Leaf	--	--	*
TRICIN-4'-O-BETA-D-GLYCOSIDE	Leaf	--	--	*
TRICIN-7-O-ALPHA-L-RHAMNOSYL-HEXOSIDE	Stem	--	--	*
TRICIN-7-O-BETA-D-GLUCOSIDE	Leaf	--	--	*
TRICIN-7-O-BETA-D-GLYCOSIDE	Leaf	--	--	*
TRIGONELLINE	Seed	--	--	Wealth of India.

Activities (15)	
Anticancer (Cervix)	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Anticancer (Liver)	Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
Antihyperglycemic	Iwu, M.M. 1993. <i>Handbook of African Medicinal Plants.</i> CRC Press, Boca Raton, FL 435 pp.
Antimigraine	
Antiseptic	Iwu, M.M. 1993. <i>Handbook of African Medicinal Plants.</i> CRC Press, Boca Raton, FL 435 pp.
Antitumor (Cervix)	
Antitumor (Liver)	
Epidermal-Stimulant	
Hypocholesterolemic	
Hypoglycemic 500-3,000 mg/man/day	Martindale's 28th
Hypoglycemic 50 mg/kg orl rat	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals.</i> The Pharmaceutical Press, London. 296pp.
Mutagenic	
Osmoregulator	
Pesticide	
Propepic	

TRYPTOPHAN	Seed	--	3000.0	-0.11	Jim Duke's personal files.*
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Activities (29)	
Analgesic 750 mg/4x/day/orl/man	Martindale's 29th
Antianxiety 500-1,000 mg/meal	Werbach, M. 1993. <i>Healing with Food.</i> Harper Collins, New York, 443 pp.
Antidementia 3 g/day	Werbach, M. 1993. <i>Healing with Food.</i> Harper Collins, New York, 443 pp.
Antidepressant 1-3 g/3x/day/orl/man	Martindale's 29th
Antidyskinetic 2-8 g/orl/wmn/day	Martindale's 29th
Antihypertensive	J. Agri. & Food Chemistry, 36: 1079.
Antiinsomniac 1-3 g/day	Werbach, M. 1993. <i>Healing with Food.</i> Harper Collins, New York, 443 pp.
Antimanic 12 g/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. <i>A Textbook of Natural Medicine.</i> John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimenopausal 6 g/day	Werbach, M. 1993. <i>Healing with Food.</i> Harper Collins, New York, 443 pp.
Antimigraine 500 mg/man/4x/day	Martindale's 29th
Antioxidant 125 ug/ml	

Antiphenylketonuric	Martindale's 29th
Antiprostaglandin 250 pg/ml	
Antipsychotic 12 g/man/day	Martindale's 29th
Antirheumatic	Martindale's 29th
Antiscoliotic	
Carcinogenic	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypnotic	Martindale's 29th
Hypoglycemic	Economic & Medicinal Plant Research, 6: 157.
Hypotensive 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Insulinase-Inhibitor	Economic & Medicinal Plant Research, 6: 157.
Insulinotonic	J. Agri. & Food Chemistry, 36: 1079.
Monoamine-Precursor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Prolactinogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Sedative 3-10 g/man/day	
Serotonergic 6-12 g/day/orl/man	Martindale's 28th
Tumor-Promoter	J. Agri. & Food Chemistry, 36: 1079.

TRYPTOPHAN Plant -- 2000.0 -0.95 Jim Duke's personal files.\*

#### Activities (29)

Analgesic 750 mg/4x/day/orl/man	Martindale's 29th
Antianxiety 500-1,000 mg/meal	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidementia 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antidepressant 1-3 g/3x/day/orl/man	Martindale's 29th
Antidyskinetic 2-8 g/orl/wmn/day	Martindale's 29th
Antihypertensive	J. Agri. & Food Chemistry, 36: 1079.
Antiinsomniac 1-3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimanic 12 g/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antimenopausal 6 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antimigraine 500 mg/man/4x/day	Martindale's 29th
Antioxidant 125 ug/ml	
Antiparkinsonian 2 g 3 x/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiphenylketonuric	Martindale's 29th
Antiprostaglandin 250 pg/ml	
Antipsychotic 12 g/man/day	Martindale's 29th
Antirheumatic	Martindale's 29th
Antiscoliotic	
Carcinogenic	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
Essential	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Hypnotic	Martindale's 29th
Hypoglycemic	Economic & Medicinal Plant Research, 6: 157.
Hypotensive 3 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Insulinase-Inhibitor	Economic & Medicinal Plant Research, 6: 157.
Insulinotonic	J. Agri. & Food Chemistry, 36: 1079.
Monoamine-Precursor	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Prolactinogenic	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Sedative 3-10 g/man/day	
Serotonergic 6-12 g/day/orl/man	Martindale's 28th
Tumor-Promoter	J. Agri. & Food Chemistry, 36: 1079.

TYROSINE Seed 2000.0 14000.0 1.45 Jim Duke's personal files.\*

#### Activities (8)

Antidepressant?	
Antiencephalopathic	Martindale's 29th
Antiparkinsonian 100 mg/kg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiphenylketonuric	Martindale's 29th
Antiulcer 256 mg scu	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Antiulcer 400 mg/kg ipr rat	Borchard, R. E., Barnes, C. D., and Eltherton, L. G. 1991. Drug Dosage in Laboratory Animals: A Handbook. (3rd Ed.) The Telford Press, Inc., P. O. Box 287, Caldwell NJ 07006.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

URONIC-ACIDS	Plant	--	--		*
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VALINE	Seed	4000.0	11000.0	-0.12	Jim Duke's personal files.*
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**Activities (3)**

Antiencephalopathic Essential	Martindale's 29th
FLavor FEMA 1,000-2,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

VALINE	Plant	--	12000.0	0.45	Jim Duke's personal files.*
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**Activities (3)**

Antiencephalopathic Essential	Martindale's 29th
FLavor FEMA 1,000-2,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

VANILLIC-ACID	Seed	--	--		*
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**Activities (24)**

Aldose-Reductase-Inhibitor 100 uM/l	
Allelopathic	
Anthelmintic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antibacterial 1.5-15 mg/ml	Recio, M. C., Rios, J. L., and Villar, A., A review of some antimicrobial compounds isolated from medicinal plants reported in the literature 1978-1988, Phytotherapy Research, 3(4), 1989, 117-125.
Anticancer	
Antifatigue	
Antiinflammatory	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antileukemic IC50=25-56 ug/ml	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. Am J Chin Med, 31(1):37-46.
Antioxidant IC21=30 ppm	
Antioxidant 1/3 BHA	
Antiperoxidant IC15-65=100-200 ug/ml	
Antiradicular 7 x quercetin	
Antiseptic	
Antisickling	Planta Medica, 56(6): 681, 1990.
Antitumor	
Antitumor-Promoter	
Ascaricide	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Choleretic	
Fungicide	
Immunosuppressant	
Laxative	=ICMR(Indian Council of Medical Research).1976.Medicinal Plants of India.Vol.1.Indian Council of Med. Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
Pesticide	
Ubiquiot	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

VANILLIN	Plant	--	--		Stitt, Paul. Why George should eat broccoli.
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**Activities (28)**

Allelochemic IC50=4.26 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Allergenic	
Antianemic	
Anticancer	
Antidrepanocytic	
Antiescherichic 10-100 mmol/l	
Antilactobacillic 10-100 mmol/l	
Antilisteria	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antioxidant #NAME?	
Antipolio	Economic & Medicinal Plant Research, 5: 194.
Antiradicular 7 x quercetin	

Antitumor	
Antitumor-Promoter	
Antiviral	Economic & Medicinal Plant Research, 5: 194.
Antiyeast 8-30 mM	
Bacteristat 10-40 mmol/l	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidicide 8-20 mM	
Choleretic	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Flavor FEMA 50-20,000	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
Fungicide	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Immunosuppressant	
Insectifuge?	Martindale's 28th
Irritant	
Perfumery	
Pesticide	

VITAMIN-A	Leaf	--	0.6		*
VITAMIN-B-1	Seed	--	7.0	1.0	*

#### Activities (24)

Analgesic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antialcoholic	
Antialzheimeran 100-3,000 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antianorectic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antibackache 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiberiberi	
Anticardiospasmic	
Anticolitic	
Antidecubitic	
Antideliriant	
Antiencephalopathic	Martindale's 29th
Antifatigue	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antigastritic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiheartburn	
Antiherpetic	
Antimigraine	
Antimyocarditic	
Antineuralgic 1-4 g/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antineurasthenic	
Antineuritic	
Antineuropathic 50 mg	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antipoliomyelitic	
Insectifuge 75-150 mg/man/day	Martindale's 28th
Pesticide	

VITAMIN-B-2	Seed	--	1.3	1.0	*
VITEXIN-2"-O-ALPHA-L-RHAMNOSIDE	Shoot	--	--		*

#### Activities (1)

ACE-Inhibitor IC50=0.28 mM/l

VITEXIN-2'-RHAMNOSIDE	Leaf	--	--		J.S. Glasby Dict. Pls Containing 2ndary Metabolite. 1991.
VITEXIN-O-GLUCOSIDE	Sprout Seedling	--	--		*
WATER	Seed	48000.0	213000.0	-0.06	Jim Duke's personal files.*
WATER	Plant	--	780000.0	0.04	*
WAX	Seed	--	9000.0	-0.09	*
XANTHOPHYLL-EPOXIDE	Sprout	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis,

**Activities (77)**

ACE-Inhibitor	
Analgesic	
AntiBPH 25-60 mg/day	
AntiCrohn's	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
AntiHIV	
Antiacne 135 mg/day	
Antiacrodermatitic 8-34 mg/day/orl/chd	Martindale's 29th
Antialcoholic	
Antialopeic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antialzheimeran 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiangiogenic	
Antianorexic	Martindale's 29th
Antiarthritic 50 mg/3x/day/orl/man	
Anticanker 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticataract 30 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Anticoeliac	Martindale's 28th
Anticold 50 mg	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticolitic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Anticoronary 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidandruff	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antidementia	
Antidiabetic 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antidote (Cadmium)	Let's Live, May 1989.
Antidysgeuzic	
Antieczemic 150 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiencephalopathic	Martindale's 29th
Antiepileptic 100 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antifibrotic 30 mg	
Antifuruncular 45 mg/3x/day/man	Martindale's 28th
Antihangover 15 mg	
Antiherpetic? 25-60 mg/day	
Antiimpotence	Martindale's 29th
Antiinfective 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinfertility 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antiinsomniac	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antileptic	Martindale's 29th
Antileukonychic	
Antilymphomic	
Antimaculitic	
Antimetastatic	
Antineuropathic	
Antinyctalopic	
Antioesity 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiosteoporotic	
Antiperiodontitic	
Antiplaque	Martindale's 29th
Antiprolactin	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antiprostatic 50 mg/man/day/orl	Pizzorno, J.E. and Murray, M.T. 1985. A Textbook of Natural Medicine. John Bastyr College Publications, Seattle, Washington (Looseleaf).
Antirheumatic	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Antiseptic 50 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antispare-Tire 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antistomatitic 50 mg/man/3x/day	Martindale's 28th
Antisyndrome-X 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antitinnitic 60-120 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Antitriglyceride 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Antiulcer 50 mg/3x/day/man	Martindale's 28th
Antiulcer 88 mg/rat/day/15 days	

Astringent	Martindale's 28th
Collagenic	
Copper-Antagonist	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Deodorant	Martindale's 29th
Detoxicant (Alcohol)	
Ergogenic	
Hypotensive 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Immunomodulator	
Immunostimulant	Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.
Immunosuppressant 300 mg/day/6 wks/orl/man	Martindale's 29th
Insulinogenic 30 mg/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Leptingenic 30-60 mg/man/day	Challem, J., Berkson, Burt, and Smith, Melissa Dianne. 2000. Syndrome X - The complete nutritional program to prevent and reserve insulin resistance. John Wiley & Sons, New York. 272 pp. \$24.95
Mucogenic	Li, K.M. Effect of zinc sulphate on acetic acid-induced gastric ulceration in rats. J. Pharm. Pharmacol. 42: 657-659, 1990.
NF-kB-Inhibitor	
Pesticide	
Spermigenic 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Testosteronigenic 60 mg/day	Werbach, M. 1993. Healing with Food. Harper Collins, New York, 443 pp.
Trichomonicide	Martindale's 29th
Vulnerary	Martindale's 28th